



# PUTTING HEALTH DATA TO USE LOCALLY IN MARYLAND: A WORKSHOP ON BEST PRACTICES

November 30, 2012

University of Baltimore

William H. Thumel Sr. Business Center

11 W. Mount Royal Avenue

Baltimore, Maryland



# PURPOSE



The workshop will include perspectives on local health data presentation and use from diverse viewpoints, and breakout sessions where attendees can offer their views. These discussions will be used by the Department to guide future policy development.



# AGENDA



- |       |  |
|-------|--|
| 9:00  | Greetings and Introduction                                     |
| 9:15  | Keynote Address  |
| 9:30  | Perspectives on Vulnerable Population Data                     |
| 10:00 | Statistical Issues in Presenting Local Health Data             |
| 10:45 | Break  |
| 11:00 | Community Perspectives in Presenting Local Health Data         |
| 12:00 | Lunch  |
| 1:00  | Charge to Breakout Groups                                      |
| 1:30  | Breakout Groups (Rooms 305, 307, 323)                          |
| 3:00  | Break  |
| 3:10  | Plenary – Breakout Group Reports (Room 003)                    |
| 3:30  | The Importance of Data to Public Health – Secretary Sharfstein |
| 3:45  | Open Discussion on Next Steps                                  |
| 4:15  | Closing Remarks  |
| 4:30  | Adjourn  |

# ***Putting Health Data to Use Locally in Maryland: A Workshop on Best Practices***

## **Insights and Pitfalls in Health Equity Data**

**November 30, 2012**

**David A. Mann, MD, PhD, Physician Epidemiologist**



Office of Minority Health and Health Disparities  
Maryland Department of Health and Mental Hygiene





# On Being Data Driven ...



- Everyone wants to be “data driven”
  - But ... Does everyone have a data driver’s license?

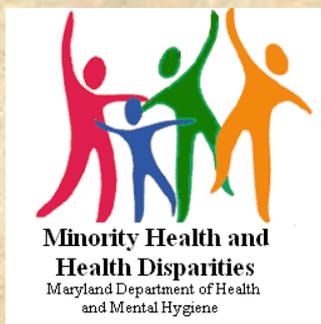


– There are rules of the road ...

– And potholes to avoid ...



- Welcome to Data Driving School



# Three Key Caveats ...

- Just because you have a number, doesn't mean you know anything
  - *Need the right number for the question*
- The only thing worse than no data is being MISLED by data.
  - *“True” number can give wrong conclusion*
- Heisenberg uncertainty principle: Some things are unknowable ...
  - *E.g. Incidence/prev of some infectious disease*



# Know Your Question !

What is the question that I am trying to answer by using data?

- The data are not the goal.
- The data are just a way to get to the goal.
- **The goal is to learn some important truth (answer some important question).**
- **The question determines which data are the right data, that will take you to the valid answer.**
- **Product is an ANSWER, not a number.**



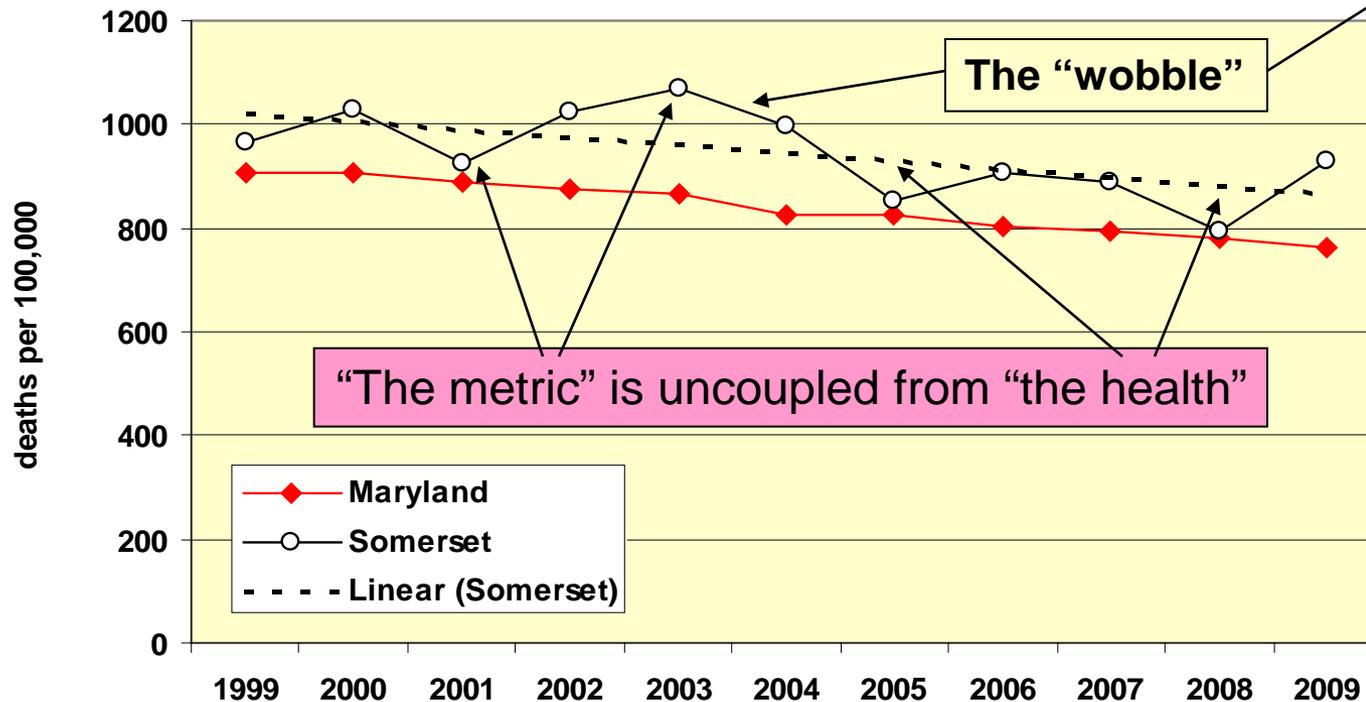
# Threats to a valid answer:

- **Random errors (chance):** [p-val, confidence int.]
  - Sampling error in survey data
  - Year-to-year variation in event data
- **Systematic errors (bias):** [optimal data collection]
  - Missing data
  - Misclassified data
- **Confounding:** [appropriate adjustment methods]
  - Age confounding in general, esp for R/E disparity
  - Race confounding in geographic comparisons
- **For metrics ... is more better or is less better?**

# Data Instability Example: Age-adjusted All-Cause Mortality Rate



Age-adjusted All-cause Mortality, Maryland and Somerset County, by Year, 1999 to 2009 (CDC WONDER)



Somerset is similar to MD in some years, and very much higher in some years.

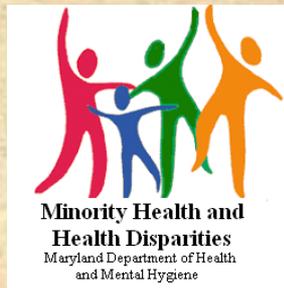
Overall, Somerset is moderately higher than MD.

Presenting just one year may be misleading

Age-adjustment accounts for age differences between groups or places.



# Special Issues In Disparities Data



- **Data collection:**
  - *Complete data on race and ethnicity*
  - *Accurate data on race and ethnicity*
  - *Standard definitions and set of race/ethnic categories*
- **Data Analysis:**
  - *Dealing with the multiracial response issue*
  - *Minority Health Metric vs. Disparity Metric*
  - *Difference vs. ratio for disparity metric*
  - *The problem with prevalence for disparity metrics*
  - *Age confounding (minorities are younger)*
  - *Race confounding in geographic comparisons*



# Approaches to Multiracial Data



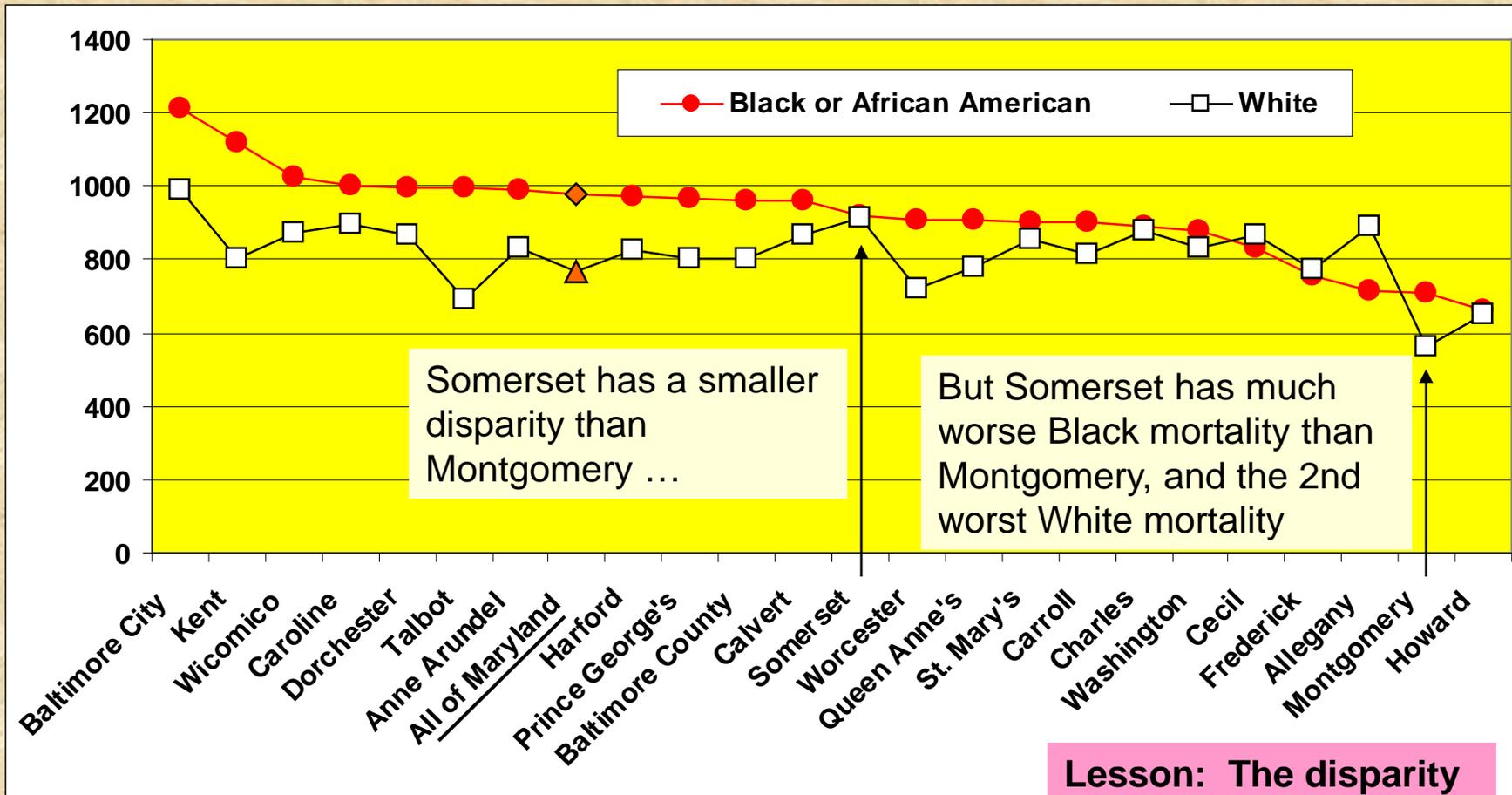
- **Race Alone** (plus a multiracial category)
  - *Each race number is persons reporting only that one race*
  - *Race groups plus multiracial sums to 100%*
  - *2010 census, Maryland American Indians = 20,420*
- **Bridged-race estimates** (no multiracial category)
  - *Assigns multi-racial to single races by an NCHS algorithm*
  - *Race groups sum to 100%*
  - *2010 census, Maryland American Indians = 36,170*
- **Race “alone or in combination”** (no multiracial category)
  - *Each race number is persons with any report of the race*
  - *Race groups sum to over 100%, multiracial counted multi*
  - *2010 census, Maryland American Indians = 58,657*



# Minority Health Metric vs. Minority Disparity Metric



Age-Adjusted All-Cause Mortality (rate per 100,000) by Black or White Race and by Jurisdiction, Maryland 2004-2006 Pooled



Age-adjusted death rates for Blacks could not be calculated for Garrett County  
 Source: CDC Wonder Mortality Data 2004-2006

**Lesson: The disparity metric displayed alone can be misleading !!!**



# Rate Ratio vs. Rate Difference



*Black vs. White Mortality Disparity, 14 Leading Causes of Death, Maryland 2008*

Rate Ratio Disparity Rank	Rate Difference Disparity Rank	Statewide Cause of Death Rank*	Disease	Age-adjusted Mortality per 100,000		Age-adjusted Ratio	Age-adjusted Difference per 100,000
				Black	White		
			<b>All Causes</b>	<b>919.5</b>	<b>736.4</b>	<b>1.25</b>	<b>183.1</b>
6	1	1	Heart Disease	240.1	188	1.28	52.1
7	2	2	Cancer	212.8	175	1.22	37.8
8	8	3	Stroke	45.1	38.3	1.18	6.8
		4	Chronic lung Disease	21.4	40	0.54	-18.6
		5	Accidents	24.8	26.4	0.94	-1.6
3	4	6	Diabetes	37.2	17.6	2.11	19.6
9	9	7	Alzheimer's Disease	19.2	18.6	1.03	0.6
		8	Flu&Pneumonia	16.8	18.3	0.92	-1.5
5	6	9	Septicemia	27.7	14.8	1.87	12.9
4	7	10	Kidney diseases	21.8	11.1	1.96	10.7
2	5	11	Homicide	21.7	3.7	5.86	18.0
		12	Suicide	4.4	10.5	0.42	-6.1
1	3	13	HIV/AIDS	21.7	1.4	15.50	20.3
		14	Chronic Liver Disease	6.3	7.2	0.88	-0.9

Largest Disparity By Rate Difference: Heart, Cancer

Largest Disparity By Rate Ratio: HIV/AIDS, Homicide

Lesson: "Worst" Disparity Depends on Which Metric is Used

(Yellow highlight indicates Black or African American death rate higher than the White death rate)

Source: *Maryland Vital Statistics Annual Report 2008*



# Ratio vs. Difference (2)

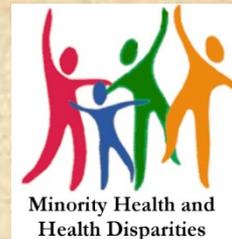


## Hypothetical Infant mortality rates:

- **County A:**
  - **Black rate 10, White rate 5 (infant deaths per 1000 live births)**
  - **B/W ratio = 2 (no units, the ratio is unitless)**
  - **B-W difference = 5 infant deaths per 1000 live births**
- **County B:**
  - **Black rate 3, White rate 1 (infant deaths per 1000 live births)**
  - **B/W ratio = 3 (no units, the ratio is unitless)**
  - **B-W difference = 2 infant deaths per 1000 live births**
- **Which county has worst disparity ?**
- **Where is a Black family better off ?**
- **Where would you put the one program you can afford ?**



# Ratio vs. Difference (3): Implications for Trends and Evaluation



## Hypothetical Results of a Minority Health Program: Success or Not?

*(Age-adjusted Rate per 100,000)*

	<u>All Cause Mortality 2020</u>	<u>All Cause Mortality 2030</u>	<u>Change</u>	<u>% Change</u>
<b>Black</b>	<b>200</b>	<b>90</b>	<b>-110</b>	<b>-55%</b>
<b>White</b>	<b>100</b>	<b>30</b>	<b>-70</b>	<b>-70%</b>
<b>Difference</b>	<b>100</b>	<b>60</b>	<b>-40</b>	<b>-40%</b>
<b>Ratio</b>	<b>2.0</b>	<b>3.0</b>	<b>1.0</b>	<b>50%</b>

**Lesson: Rate ratio disparity metrics, considered in isolation, can underestimate the success of minority health programs.**

***This is crucial to understand if trends in such metrics are used for funding decisions.***



# Problem with Prevalence for Disparity Metrics (1)



- **MD 2010 Age-adjusted Black/White Odds Ratios**

(CDC BRFSS WEAT tool):

- *Ever Diagnosed with Angina or CHD:* **0.70**

- *Ever Diagnosed with Heart Attack:* **0.78**

- ***Does this mean Blacks are at less risk than whites?***

- **Same analysis of risk factors**

- *Ever told have diabetes (ex. Pregnant)* **1.87**

- *Currently Obese* **1.79**

- *Current smoker* **1.16**

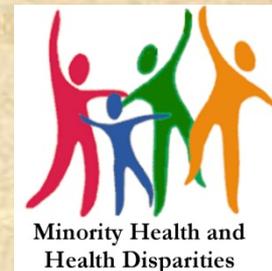
- *Ever told have Hypertension (2009)* **2.05**

- *B/W Mortality rate ratio Heart Disease* **1.24**

- ***How is this possible?***



# Problem with Prevalence for Disparity Metrics (2)



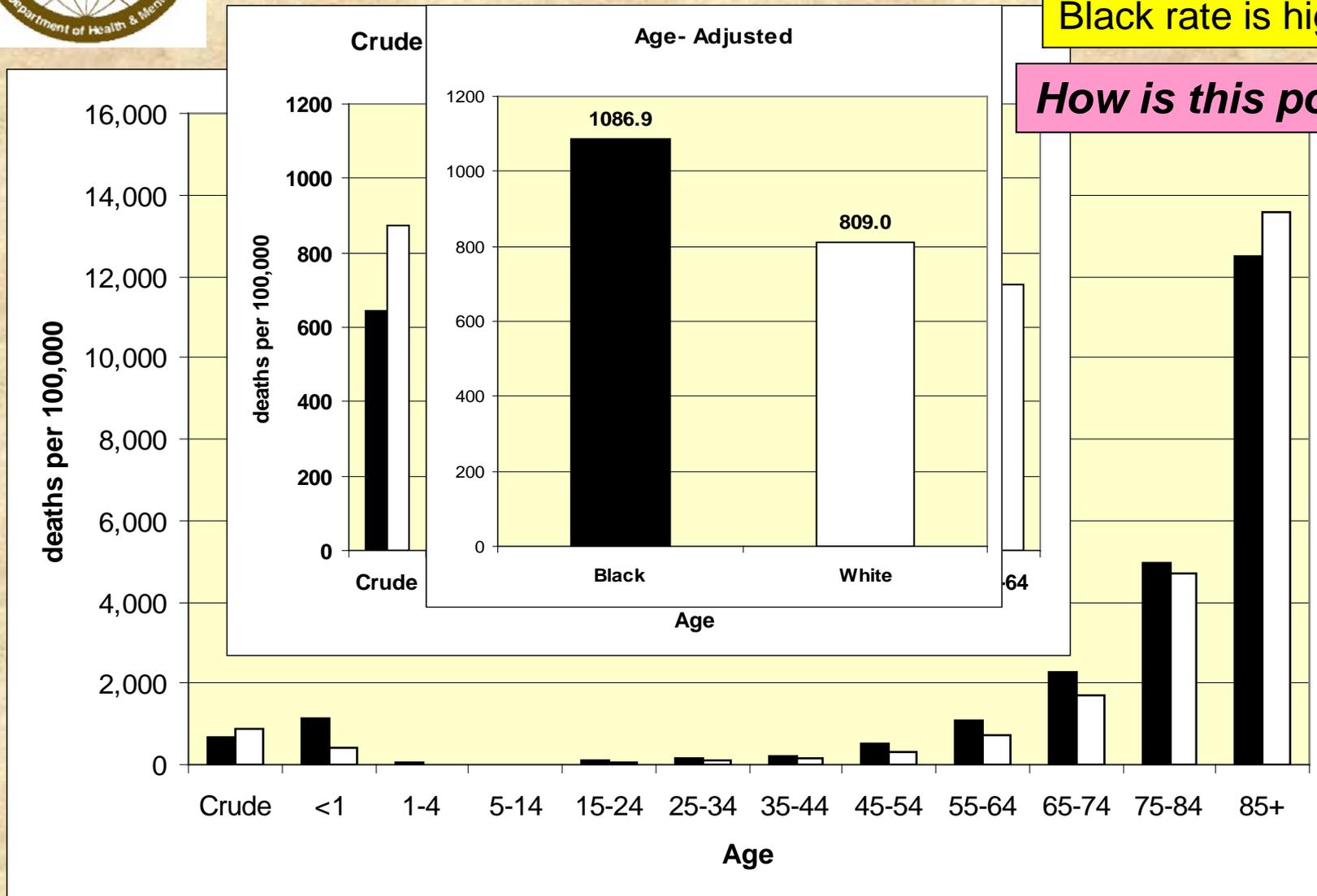
- Access to care accounts for some of previous paradox.
- Incidence is that measure of disease frequency that represents the rate of development of new cases.
  - *Incidence is risk*
- Prevalence is that measure of disease frequency that represents disease presence in the population.
  - *Prevalence is incidence times survival*
- High incidence with poor survival can lead to low prevalence.
- This can make prevalence a poor disparities metric.



# Age Confounding

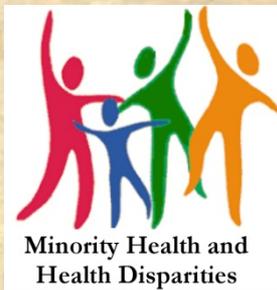
White crude rate higher than Black rate, yet at every age except 85+, Black rate is higher ...

*How is this possible?*



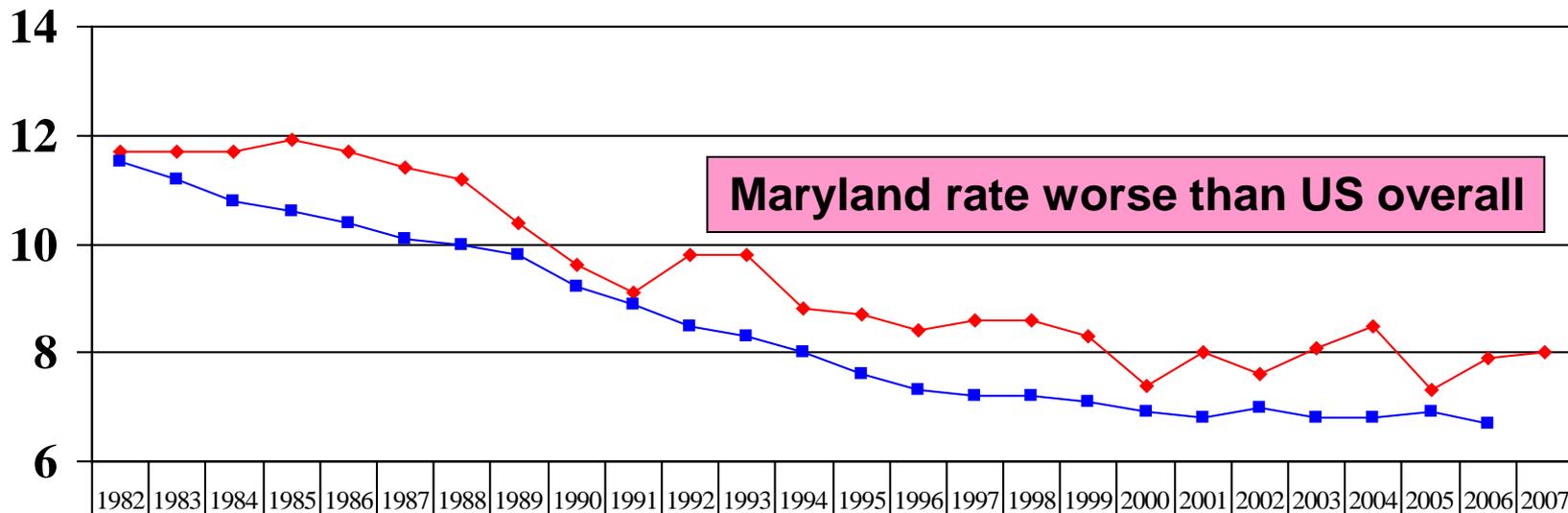


# Race Confounding in Geographic Comparisons (1)



## *Infant Mortality Rates, Maryland and US 1982 to 2007*

Rate Per 1000 Live Births



Maryland rate worse than US overall

Year

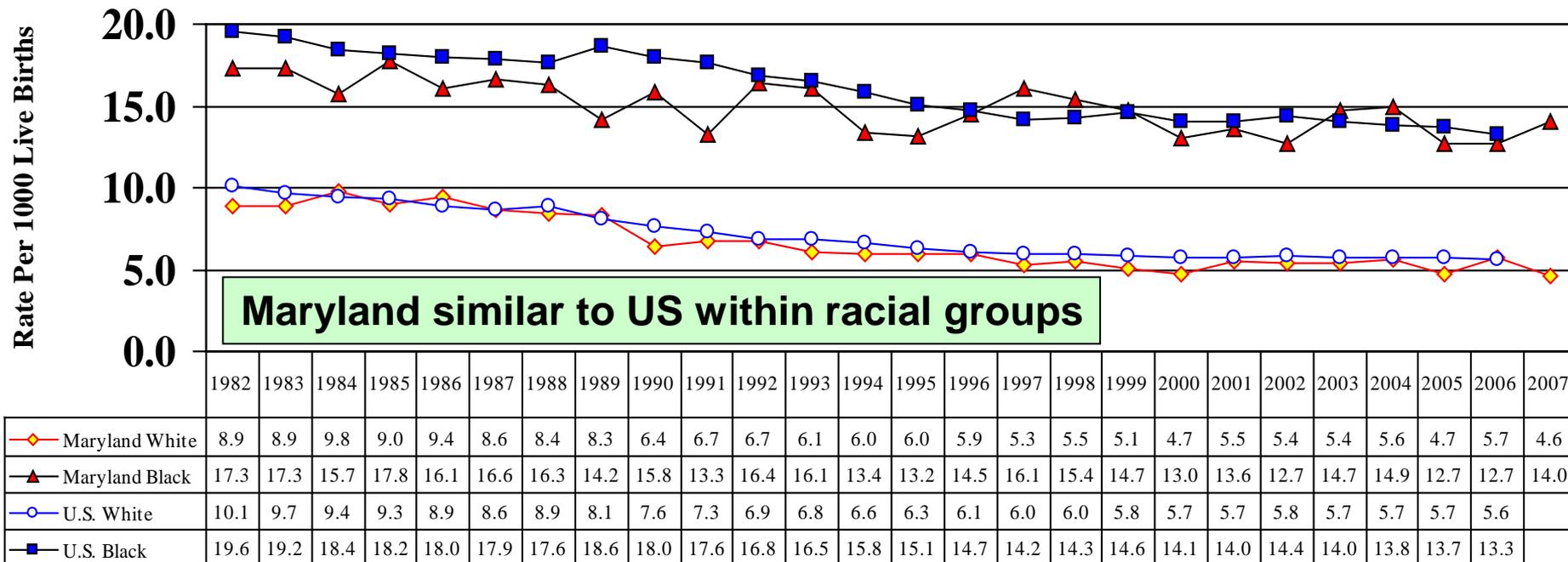
—◆— Maryland —■— United States



# Race Confounding in Geographic Comparisons (2)



## *Infant Mortality Rates, MD and US by race , 1982 to 2007*



Year

**Worse overall, same by group  
... how is this possible?**

—◆— Maryland White —▲— Maryland Black —○— U.S. White —■— U.S. Black



# Summary:

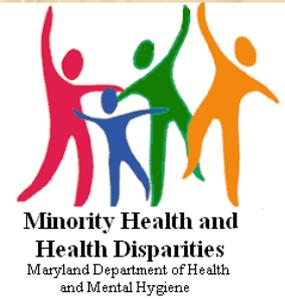


- **There is a lot of “stuff” going on with data, particularly disparities or equity data.**
- **For valid answers to important questions ...**
  - *You need the right data analyzed the right way.*
  - *You need to interpret in light of data nuances*
- **To make correct policy decisions from data ...**
  - *These data nuances must be taken into account.*



# Contact Information

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Health Disparities Plan:

[http://dhmfh.maryland.gov/mhhd/Documents/Maryland\\_Health\\_Disparities\\_Plan\\_of\\_Action\\_6.10.10.pdf](http://dhmfh.maryland.gov/mhhd/Documents/Maryland_Health_Disparities_Plan_of_Action_6.10.10.pdf)

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