Presentation to Louisiana Governor's Taskforce on COVID-19 and Health Equity

Health Equity and COVID-19 Data in Maryland

David A. Mann, MD, PhD, Epidemiologist

david.mann@maryland.gov

Office of Minority Health and Health Disparities

Maryland Department of Health

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Outline of Data Presentation

- **Health Disparity Data Basics: Social Determinant Role**

- **Some Maryland COVID-19 Data by Race/Ethnicity**

- **Data on Disparity in Some Relevant Co-morbidities**

- **Data on Social Determinants and Comorbidities**

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Health Disparity Causal and Data Model

Causal Chain of Health Disparities from Social Determinants to Ultimate Outcomes			
Social Determinants of Health *Education* *Employment* *Income* *Wealth* *Health Insurance* *Housing* *Transportation* *Food security* *Safety/Violence* *Environment* *Racism* *Etc.* **(Many of these vary by place)**	**Prevalence of Causes of Disease ("risk factors")**	**Frequency of Disease: Number of Cases New cases = incidence All cases = prevalence**	**Ultimate Outcomes: Death, Disability, Amputations, ED Visits, Hospital Admissions, and Costs**
	Access to and quality of <u>prevention</u> services		
	Severity of Causes of Disease ("risk factors")	**Severity of Disease: Rate of adverse events per case**	
	Access to and quality of <u>treatment</u> services		

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Three Roles of Data in Health Equity

- **Needs assessment: who has the problem, where, and how big or bad is the problem?**

  - **Usually done by public health using surveillance data**

- **Intervention Planning: why do we see this (causes) and how do we fix it (evidence-based interventions)?**

  - **What to do is found by academia using research data**

  - **Where to do is found by public health surveillance data**

- **Evaluation: are we making progress?**

  - **Repeat the needs assessment analysis over time**

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Challenge of Disaggregated Data – Tons of It

	Outcomes		Demographics		Geography		Metric type		Time options
How does	Total tests Positive tests Total CV admits ICU CV admits CV Deaths Total bed use ICU bed use	*differ between groups defined by*	Age Sex Race/ethnic Age x R/E Age x Sex Sex x R/E Age x Sex x R/E	*in geographic areas defined as*	Statewide Regions Jurisdictions ZIP codes Census tracts	*using*	*Count *Rate/pop *Age-adjusted rate	*over*	1 day snapshot Cumulative Daily trend
	8 options		7 options		5 options		3 options		3 options
					24 jurisdict				
					500+ ZIPs				
					1406 tracts				

This results in 2,520 Analytic Frameworks (or research questions) that can be requested on the COVID-19 data (not all of which can be fulfilled) This does not even include breaking out nursing homes and jails/prisons, and by staff and residents/inmates.
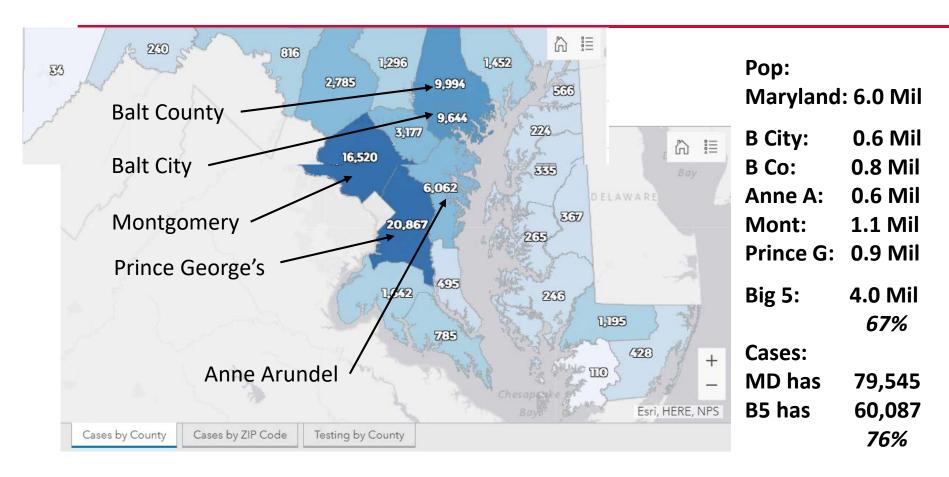
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Reasons for Minority Excess COVID Events

- **Higher minority <u>frequency</u> [incidence (more cases)]:**
  - **More employment in essential occupations**
  - **Less ability to telework (*between household spread*)**
  - **More likely to be in larger, high density, multigenerational households (*within household spread*)**
  - ***If 2x between household and 2x household size => 4x incidence***

- **Reasons for higher minority <u>severity</u> once infected:**
  - **Higher general stress due to violence, poverty and racism**
  - **Less access to resources due poverty and racism**
  - **Higher preval/sever of comorbids (HTN, Diabetes, Asthma, etc.)**

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Maryland COVID Cumulative Case Count by "County"

https://coronavirus.maryland.gov/

Pop:
Maryland: 6.0 Mil

B City:	0.6 Mil
B Co:	0.8 Mil
Anne A:	0.6 Mil
Mont:	1.1 Mil
Prince G:	0.9 Mil
Big 5:	4.0 Mil
	67%

Cases:	
MD has	79,545
B5 has	60,087
	76%

The count shows you burden
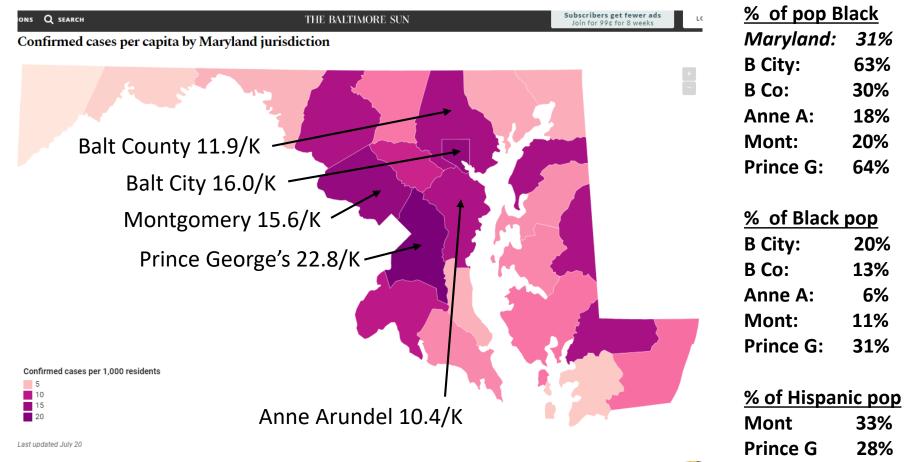
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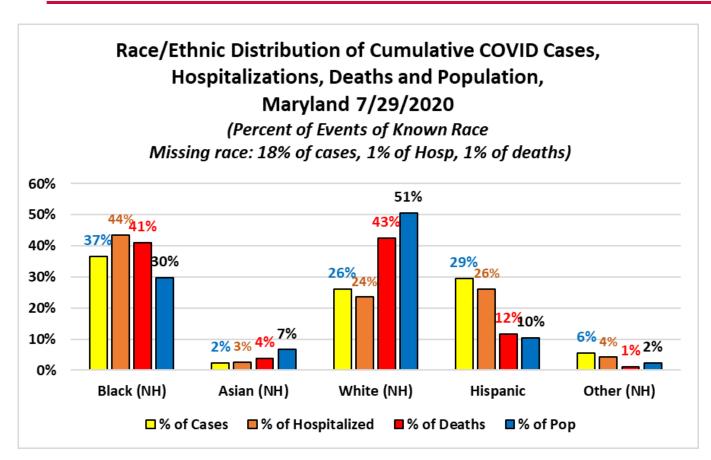
MD COVID Cumulative Case Rate per 1,000 by "County"

https://www.baltimoresun.com/coronavirus/bs-md-coronavirus-cases-statewide-maryland-20200317-rk7n7qam4fd33ka7zvrxv3xybe-htmlstory.html

Confirmed cases per capita by Maryland jurisdiction

Balt County 11.9/K

Balt City 16.0/K

Montgomery 15.6/K

Prince George's 22.8/K

Confirmed cases per 1,000 residents
- 5
- 10
- 15
- 20

Last updated July 20

Anne Arundel 10.4/K

The rate shows you risk

% of pop Black

Maryland:	*31%*
B City:	63%
B Co:	30%
Anne A:	18%
Mont:	20%
Prince G:	64%

% of Black pop

B City:	20%
B Co:	13%
Anne A:	6%
Mont:	11%
Prince G:	31%

% of Hispanic pop

Mont	33%
Prince G	28%

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Maryland Disparities in COVID Cases, Hosp, Deaths

Race/Ethnic Distribution of Cumulative COVID Cases, Hospitalizations, Deaths and Population, Maryland 7/29/2020
(Percent of Events of Known Race
Missing race: 18% of cases, 1% of Hosp, 1% of deaths)

Black (NH): % of Cases 37%, % of Hospitalized 44%, % of Deaths 41%, % of Pop 30%
Asian (NH): % of Cases 2%, % of Hospitalized 3%, % of Deaths 4%, % of Pop 7%
White (NH): % of Cases 26%, % of Hospitalized 24%, % of Deaths 43%, % of Pop 51%
Hispanic: % of Cases 29%, % of Hospitalized 26%, % of Deaths 12%, % of Pop 10%
Other (NH): % of Cases 6%, % of Hospitalized 4%, % of Deaths 1%, % of Pop 2%

% of Cases   % of Hospitalized   % of Deaths   % of Pop

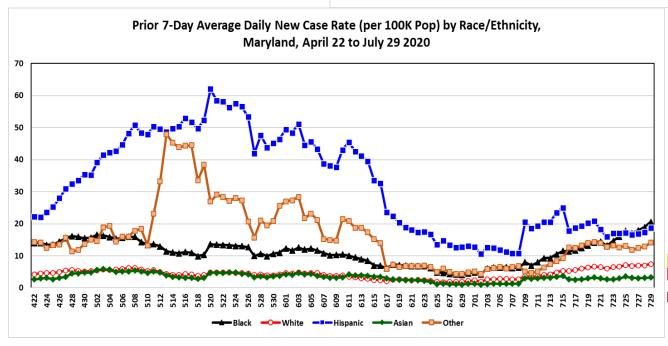**Black excess in all three metrics vs population.**

Whites low in all three metrics vs population, deaths high for case and hospital share.

Hispanics high in cases and hospital but not deaths

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Maryland New Case Trends by Race/Ethnicity

Prior 7-Day Average Daily New Case Count by Race/Ethnicity, Maryland, April 22 to July 29 2020

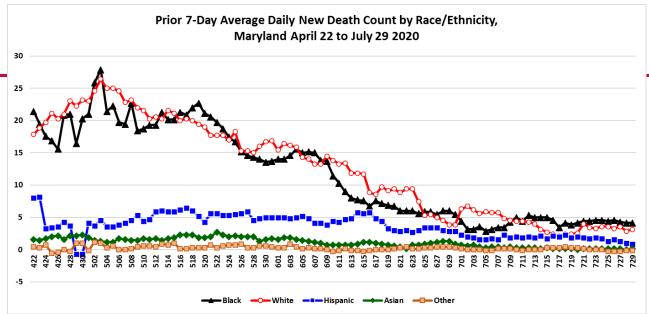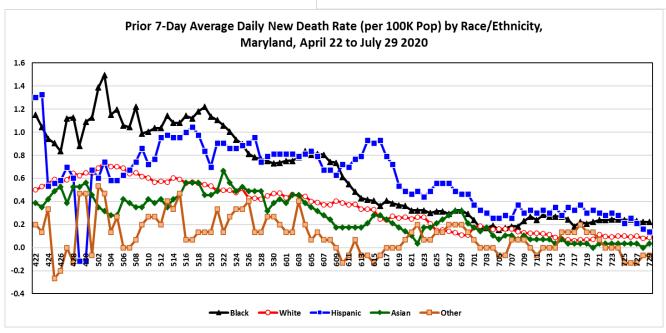Prior 7-Day Average Daily New Case Rate (per 100K Pop) by Race/Ethnicity, Maryland, April 22 to July 29 2020

Interpretation of Case Trend Data

- **Asian daily rate and trajectory matched White rate until July, when the White rate diverged up from Asian rate**

- **Black daily rate is consistently higher than the White rate**
  - **Black rate trajectory had converged toward White**
  - **However, Black and White rates are diverging in July (Black up)**

- **Hispanic daily rate had been dramatically highest**
  - **Hispanic trajectory rose much higher and peaked much later**
  - **Hispanic and Black rates have now converged to equality**

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Maryland COVID Death Trends by Race/Ethnicity

Prior 7-Day Average Daily New Death Count by Race/Ethnicity, Maryland April 22 to July 29 2020

Prior 7-Day Average Daily New Death Rate (per 100K Pop) by Race/Ethnicity, Maryland, April 22 to July 29 2020

Interpretation of Death Trend Data

- **Asian daily rate is at or below the White rate**
  - **Asian daily rate trajectory is generally similar to White**

- **Black daily rate is higher than the White rate**
  - **Black daily rate trajectory is converging to White trajectory**
  - **"Curve-bending" is similar for Blacks and Whites**

- **Hispanic daily rate started out similar to the White rate and ended up higher than Black rate and White rate**

- **All death rates are falling since early May**
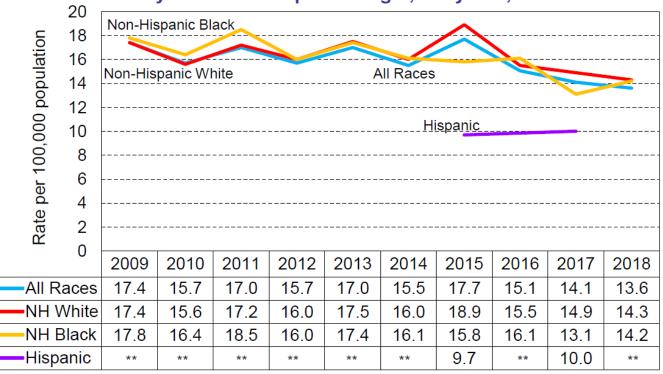
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COVID-19 is Not Flu: Flu and Pneumonia Mortality Rate

Maryland Vital Statistics Annual Report 2018
https://health.maryland.gov/vsa/Documents/Reports%20and%20Data/Annual%20Reports/2018annual_rev3.pdf

Age-Adjusted Death Rate* for Influenza and Pneumonia by Race and Hispanic Origin, Maryland, 2009-2018.
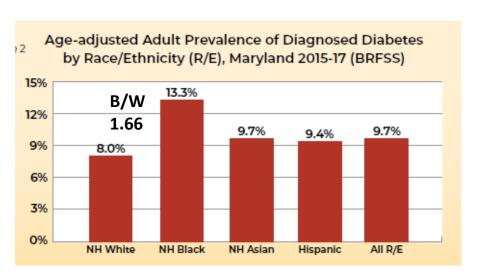
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
All Races	17.4	15.7	17.0	15.7	17.0	15.5	17.7	15.1	14.1	13.6
NH White	17.4	15.6	17.2	16.0	17.5	16.0	18.9	15.5	14.9	14.3
NH Black	17.8	16.4	18.5	16.0	17.4	16.1	15.8	16.1	13.1	14.2
Hispanic	**	**	**	**	**	**	9.7	**	10.0	**

While COVID-19 has Black and Hispanic death rate disparities,

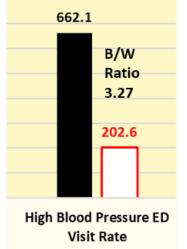**Flu and Pneumonia death rates do not show disparities**

COVID-19 is not Flu

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Maryland Disparities in COVID-19 Relevant Comorbidities

Age-adjusted Adult Prevalence of Diagnosed Diabetes by Race/Ethnicity (R/E), Maryland 2015-17 (BRFSS)

B/W 1.66
NH White 8.0%, NH Black 13.3%, NH Asian 9.7%, Hispanic 9.4%, All R/E 9.7%

Diabetes ED Visit Rate (HSCRC)
White 454.0, B/W Ratio 3.15, 143.9

Asthma ED Visit Rate (HSCRC)
White 1,274.0, B/W Ratio 3.52, 362.0

High Blood Pressure ED Visit Rate
662.1, B/W Ratio 3.27, 202.6

■ Black ☐ White

Minorities have higher disease prevalence for several relevant high-risk COVID comorbidities

And higher severity (seen in the huge ED visits disparities that exceed prevalence disparities)

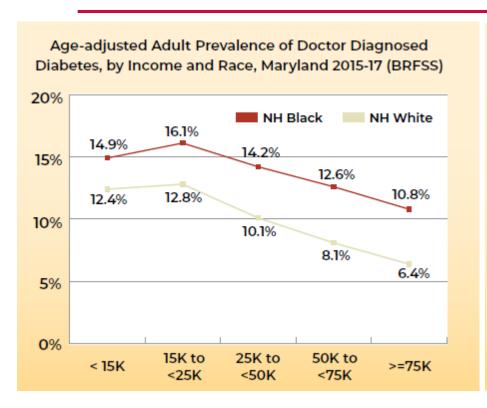**Age-adjusted rate per 100,000 population, 2017 data, HSCRC**

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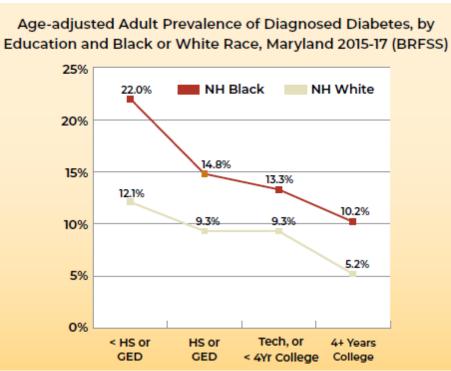DEPARTMENT OF HEALTH

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Role of Social Determinants: Diabetes Example

Maryland Diabetes Action Plan
https://phpa.health.maryland.gov/ccdpc/Documents/Diabetes%20Action%20Plan%20documents/Diabetes%20Action%20Plan%20June%201%202020.pdf

Age-adjusted Adult Prevalence of Doctor Diagnosed Diabetes, by Income and Race, Maryland 2015-17 (BRFSS)

Age-adjusted Adult Prevalence of Diagnosed Diabetes, by Education and Black or White Race, Maryland 2015-17 (BRFSS)
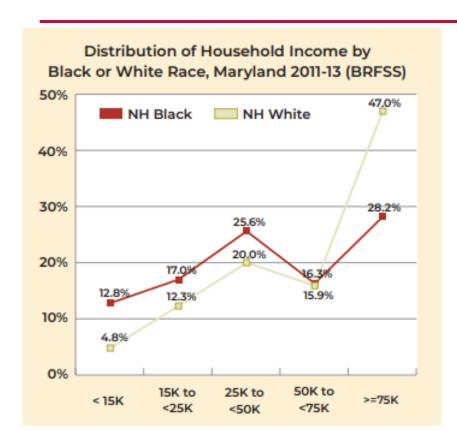
**Income/Education matters regardless of race,
Race matters regardless of income/education.
Minorities have lower income/education, and
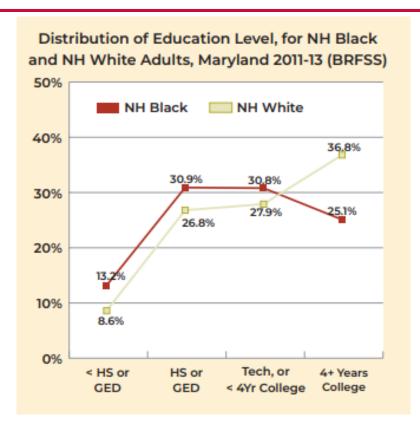do worse at every level of income/education.**

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Role of Social Determinants: Income and Education

Maryland Diabetes Action Plan
https://phpa.health.maryland.gov/ccdpc/Documents/Diabetes%20Action%20Plan%20documents/Diabetes%20Action%20Plan%20June%201%202020.pdf

Distribution of Household Income by Black or White Race, Maryland 2011-13 (BRFSS)

Distribution of Education Level, for NH Black and NH White Adults, Maryland 2011-13 (BRFSS)

Blacks are more likely to be at low income or education, and less likely to be at high Income or education.

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End of Data Presentation