

Inequities in Vitamin D Deficiency Among African Americans in Massachusetts

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Goals

- Background information
- Affected populations in MA
 - Contributing factors
- Future public health interventions

What is Health Disparity?



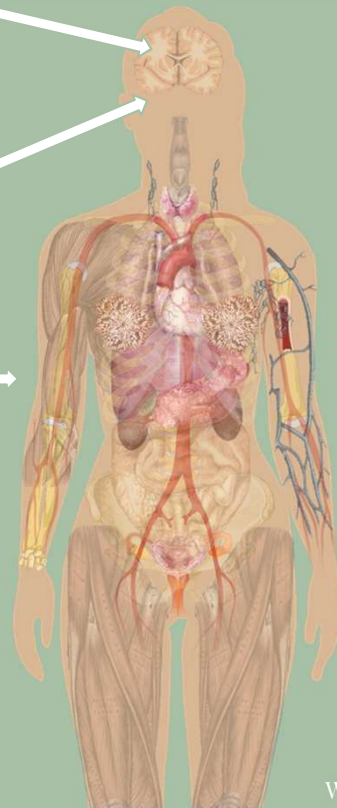
(essentialhospitals.org)

What Are Vitamins Essential For?

Vitamin C-
Neuro-
transmitters

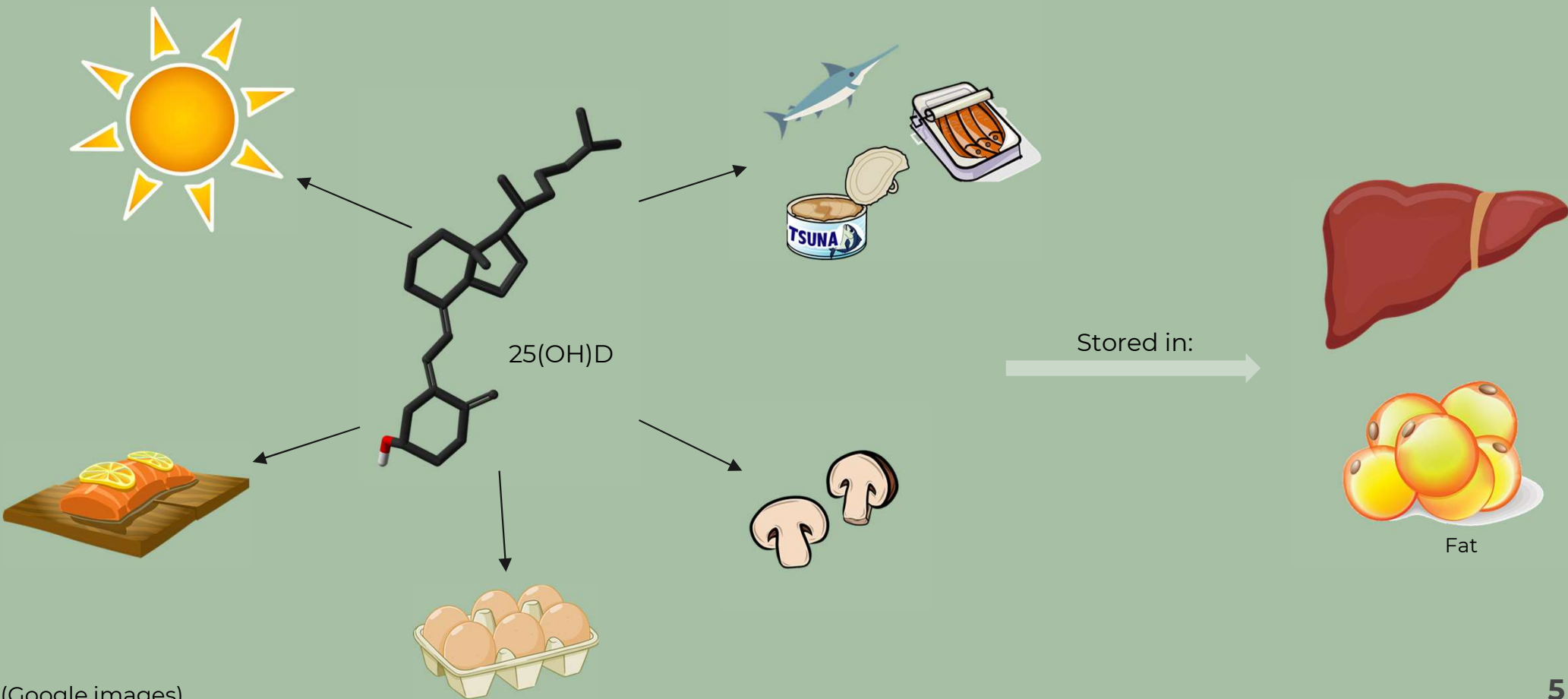
Vitamin A- Eyes

Vitamin E-Skin

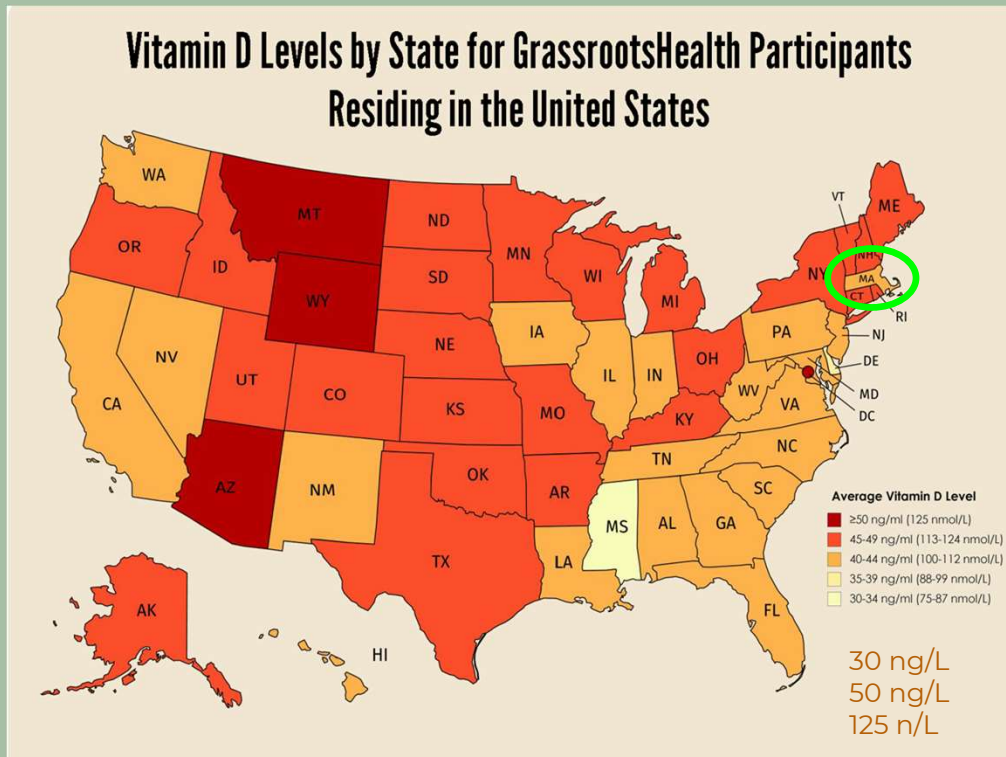


Vitamin D-
Estrogen balance,
mineral absorption,
bone density, etc.

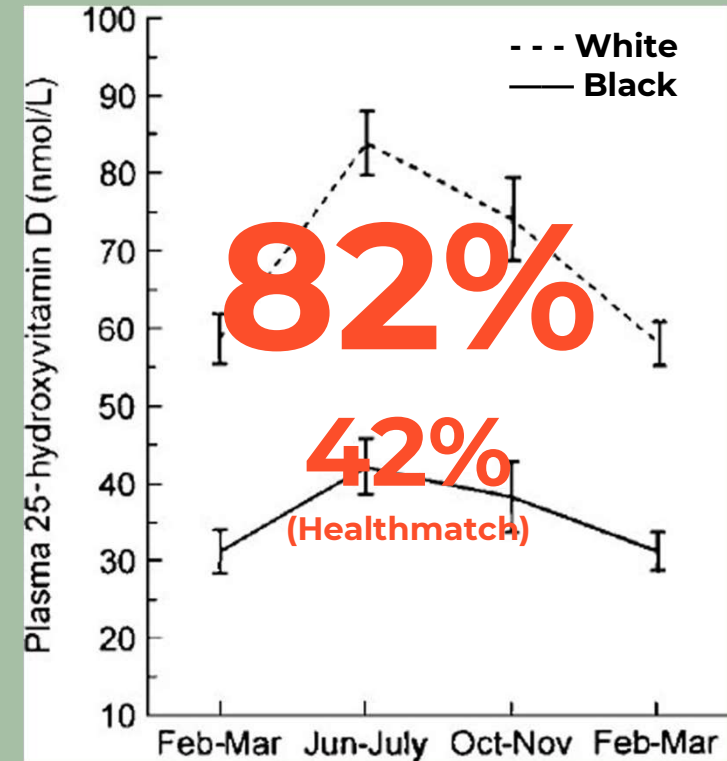
Vitamin D Characteristics & Sources



Vitamin D Levels in African Americans vs General Population



GrassrootsHealth Nutrient Research Institute



Harris et al.

Skin pigmentation & Vitamin D

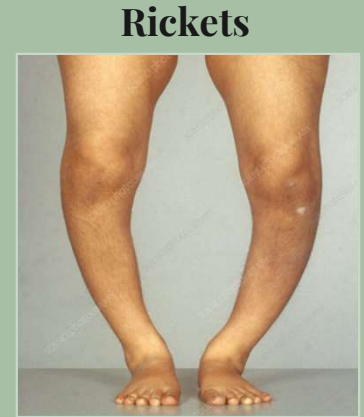


Skin pigmentation due to levels of melanin reduces the ability to synthesize vitamin D from the sun.

(Google images)

Effects of Vitamin D Deficiency on African American Children

- **40% of African American children** are Vitamin D deficient vs **20% of White** and **12% of Hispanic** children in MA
- Maternal Vitamin D deficiency causes disordered skeletal homeostasis, congenital rickets and fractures in newborns.



Library, B. A. P. (n.d.). *Rickets* - stock image - C009/4077. Science Photo Library.



(2013, November 22). *African Americans with Vitamin D deficiencies*. African Americans overdiagnosed with vitamin D deficiencies

Count the kicks. Count the Kicks. (2023, June 9).

What is a compound fracture?. Fast Pace

Effects of Vitamin D Deficiency on African American Children

Age Range	Amount (IU- International Units)
0 - 1 years old (infants)	1,000 to 1,500
1 - 8 years old (children)	2,500 to 3,000
9 years and older (adolescents and adults)	4,000

Vitamin D - The Nutrition Source - Mar 2013

African American children are more at risk of being vitamin D deficient due to inability to attain supplements

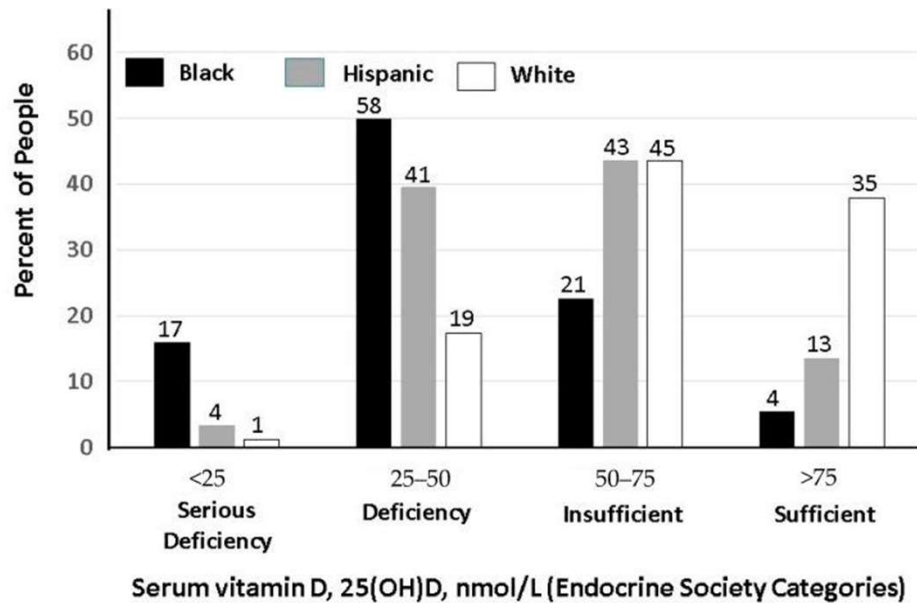
Vitamin D Deficiency in African American Adults & Elderly

70%

15-20 times higher prevalence

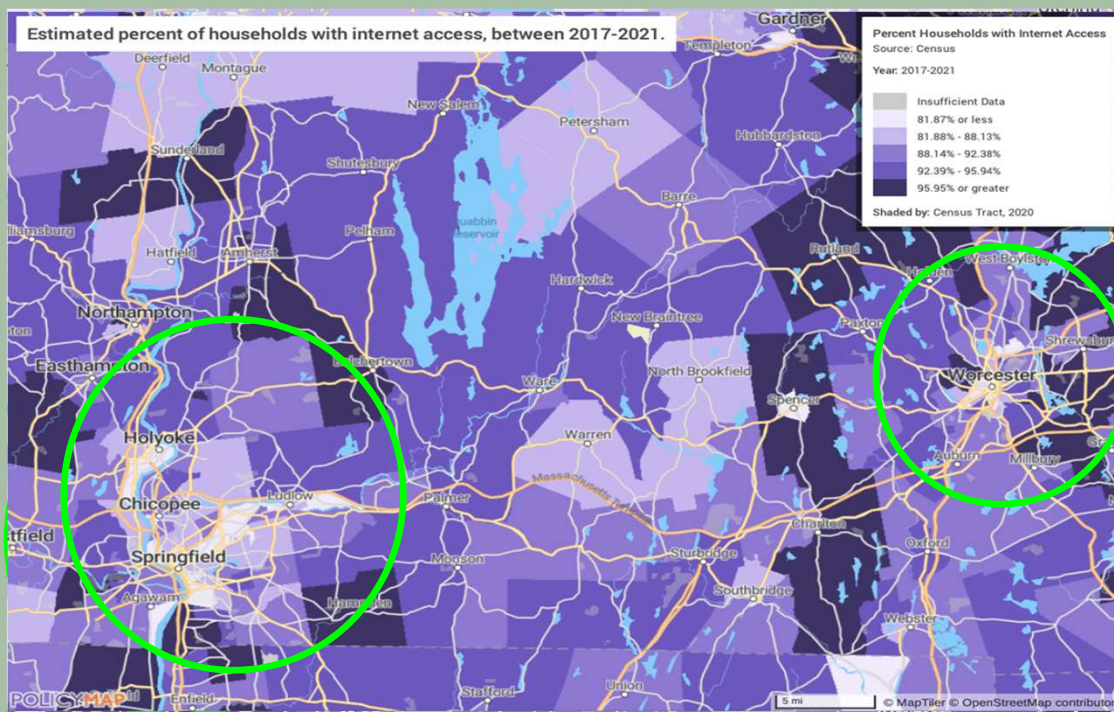
~900 IU to 4000 IU Required to be Healthy

Effect of Vitamin D Deficiency in African Americans Compared to Other Demographics:



Ames et al. (Nutrients, 2021)

Contributing Factor #1: Access to Education & Technology



Households with Internet Access
2017-2021

Light Gray - <84%

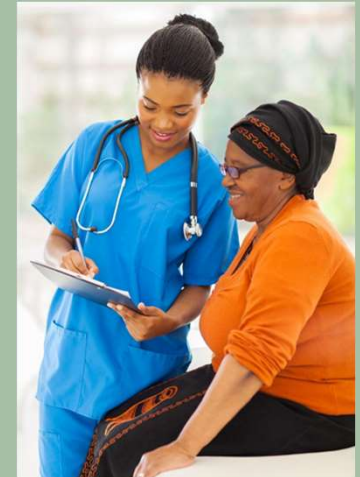
Purple - 84-94%

Dark Purple - >95%

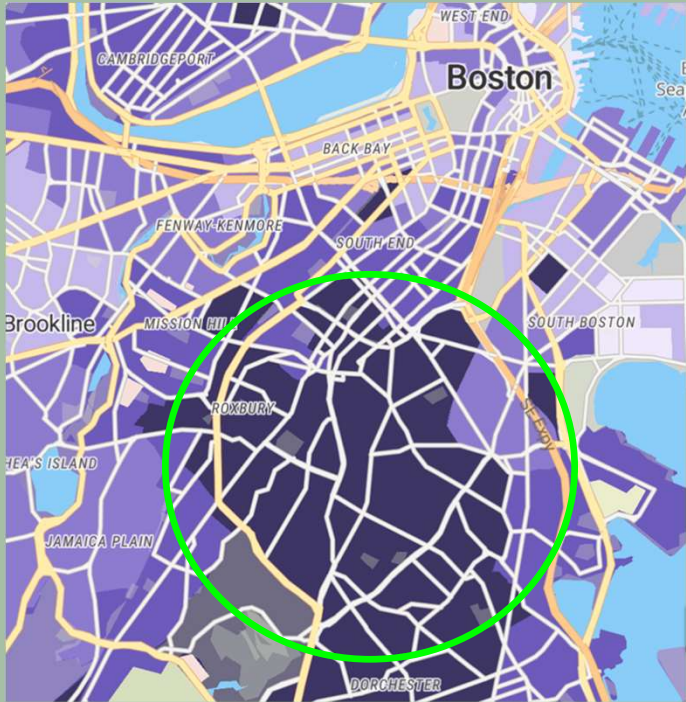
Consequence: Health Illiteracy

Health illiteracy =
inability to
1) find,
2) understand,
3) use information to
make health decisions

58%
of
African Americans
were health illiterate
(vs 38%)



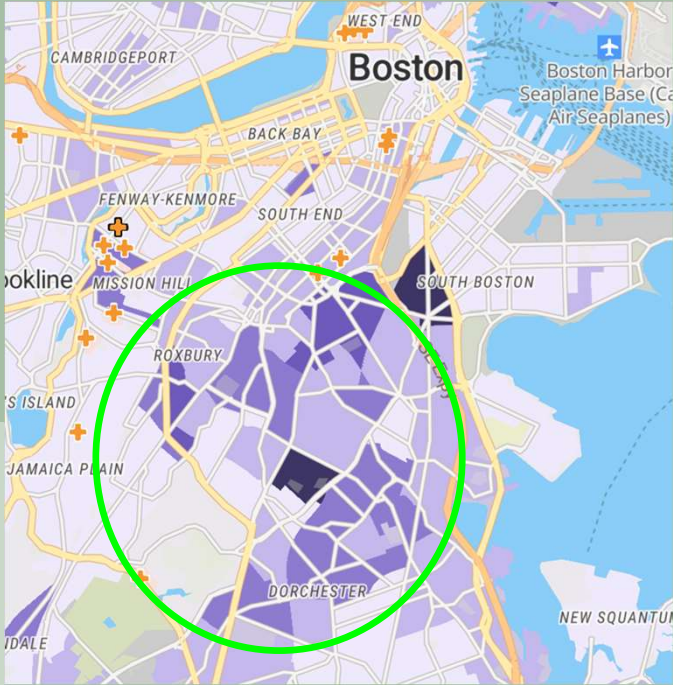
Contributing Factor #2: Access to Health Insurance:



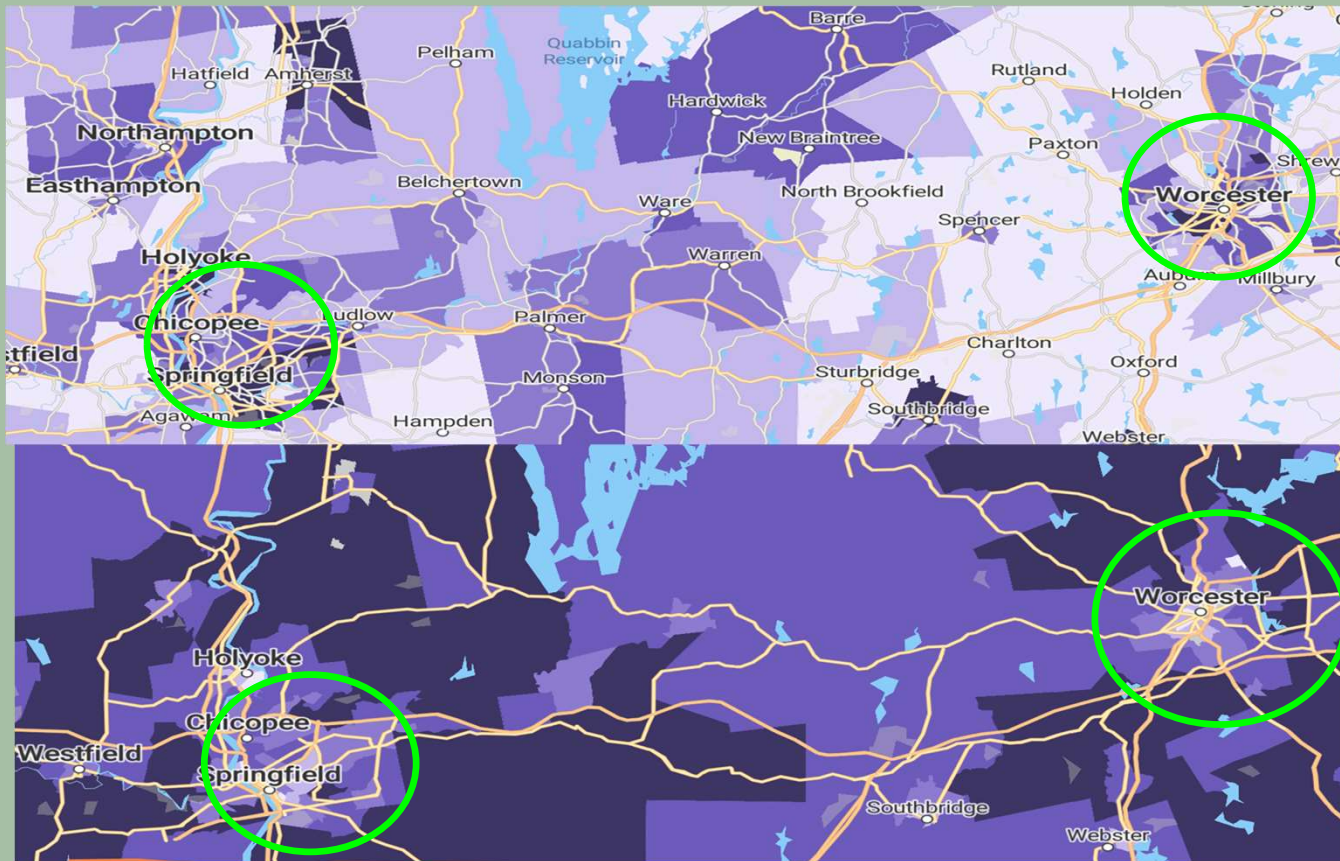
Population density of African Americans in 2020

White: <5.9%
Purple: 6-21%
Dark Purple: >22%

Estimated percent of all people without health insurance, between 2017-2021



Contributing Factor #3: Income Level



Poverty Rate 2017-2021

White - <5%
Purple - 6-20%
Dark Purple >21%

Local Median Family Income as a share of Area Median Family Income between 2016-2020

White - <30%
Purple - 31-140%
Dark Purple - >141%

(PolicyMap)

How Can We Address This?

Vitamin D Supplements if you're not receiving adequate nutrition
Which is superior: D2 or D3?

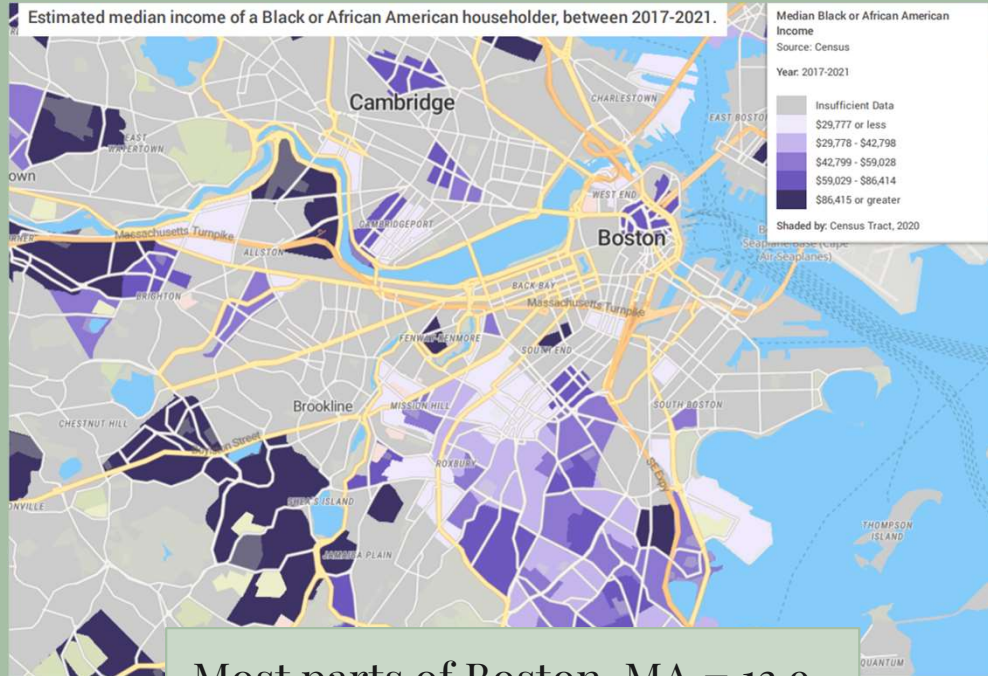


Walmart: \$7.94

CVS: \$13.79

AVG is ~\$9.00 - \$15.00

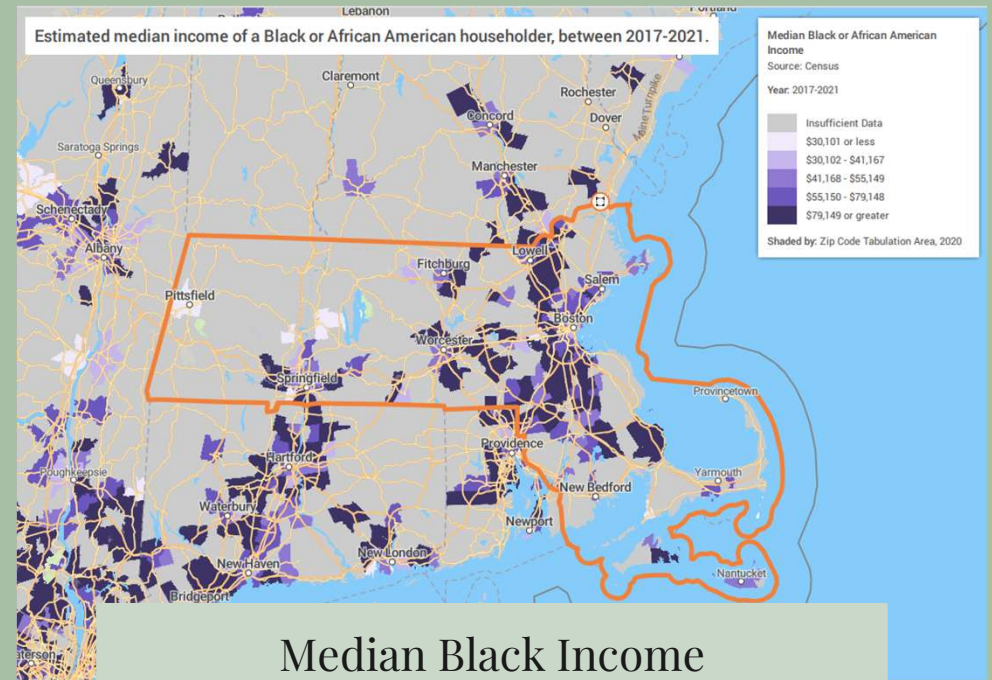
(PolicyMap, 2017-2021)



Most parts of Boston, MA = 13.9-
17.2
Median Black Income
\$66,792 (vs \$81,744)

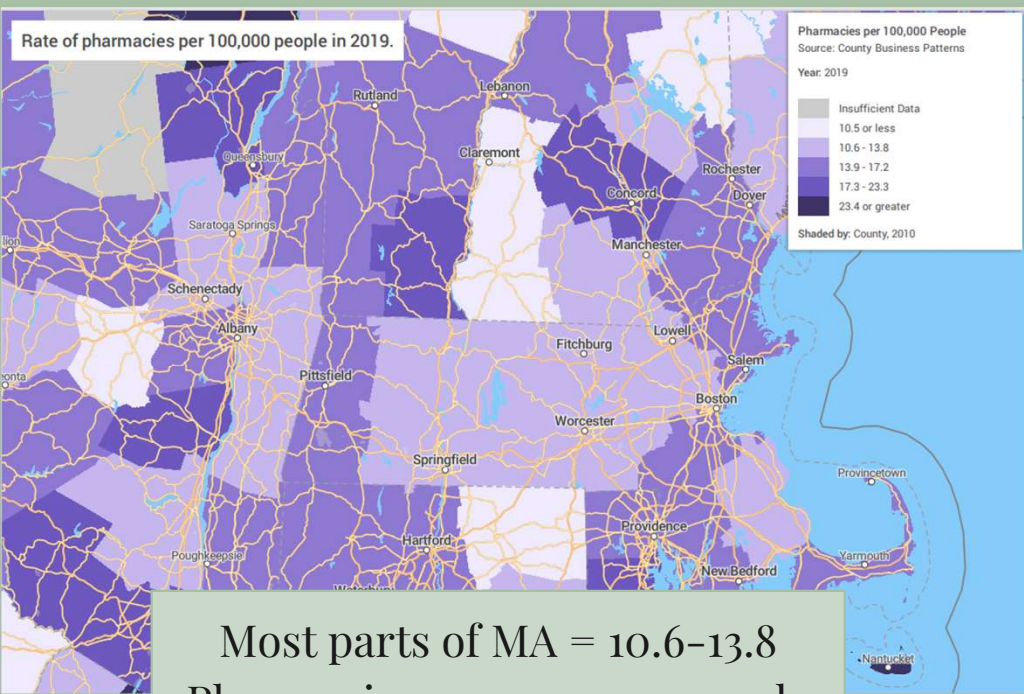
Black/African American Median Household Income:

(PolicyMap, 2017-2021)



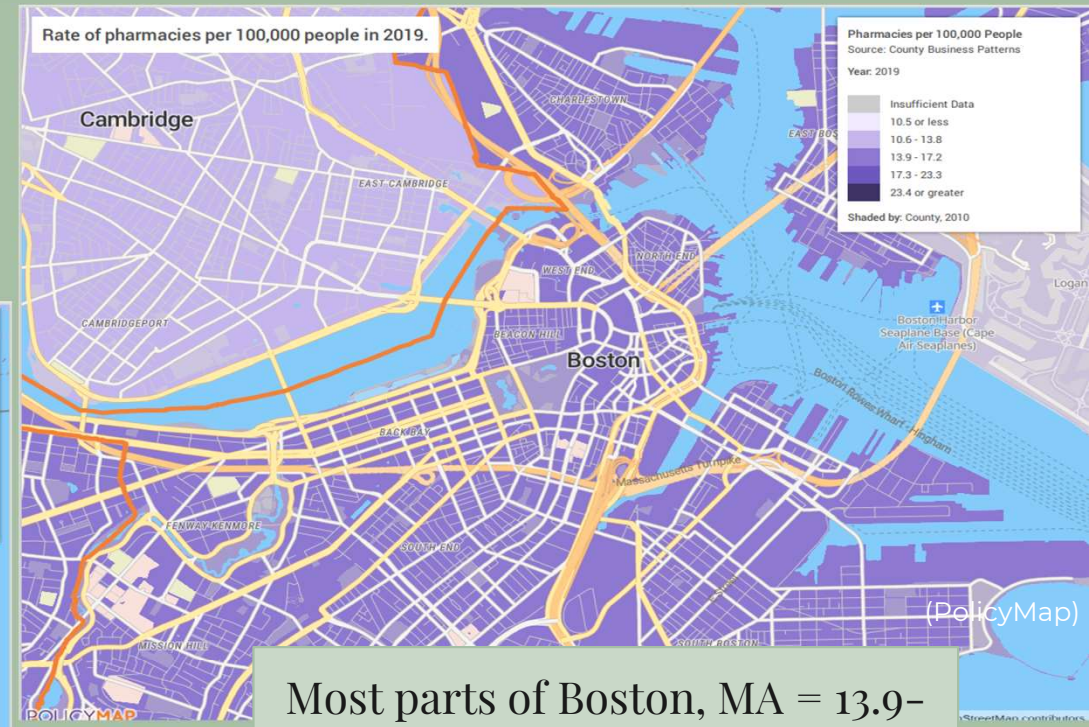
Median Black Income
\$60,232 (vs \$89,026)

Number of Pharmacies per 100,000:



Most parts of MA = 10.6-13.8
Pharmacies per 100,000 people

(PolicyMap, 2019)



Most parts of Boston, MA = 13.9-17.2
Pharmacies per 100,000 people

(PolicyMap, 2019)

Future Public Health Interventions:



**BOYS & GIRLS CLUBS
OF AMERICA**



Community Health Center

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Thank you!

Questions?