The Area Deprivation Index and other neighborhood indices: a good way to incorporate equity?

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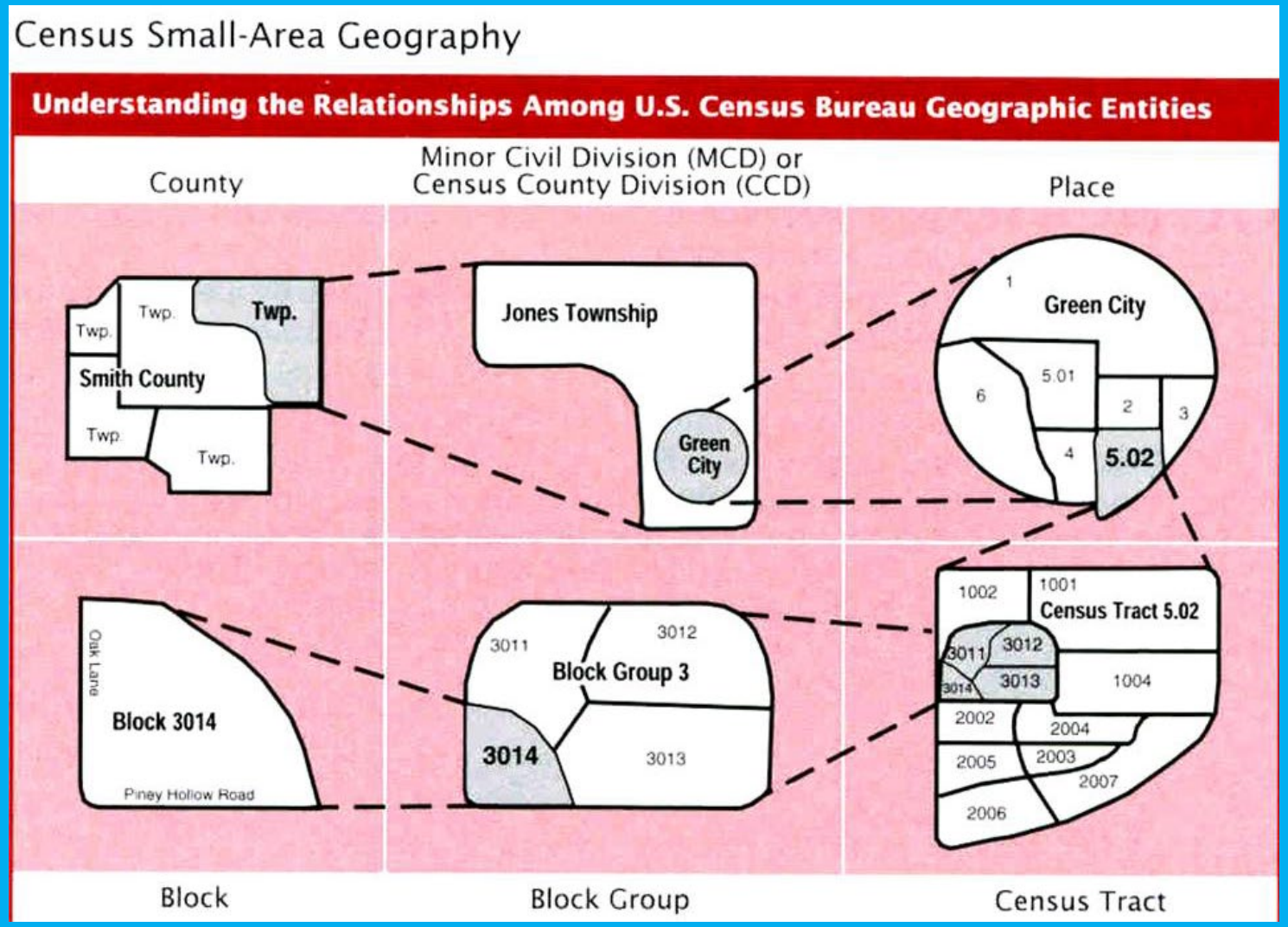
The Origins of Neighborhood Indices

Purpose: Identify “vulnerable” neighborhoods

Methods: Using census data

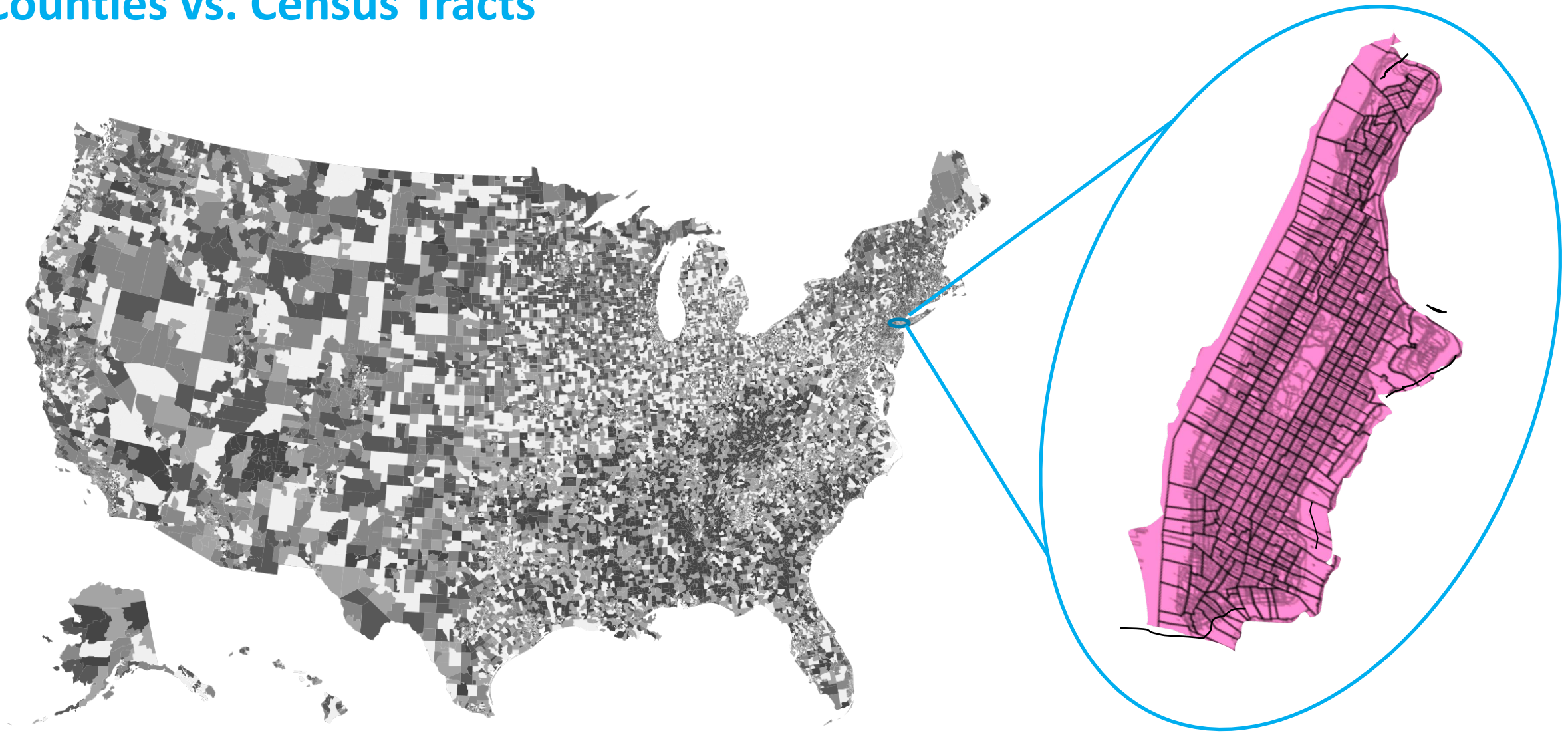
Outcomes: Mortality

At what level?



Courtesy of University of Pittsburg Library:
https://pitt.libguides.com/uscensus/understandinggeography

Counties vs. Census Tracts



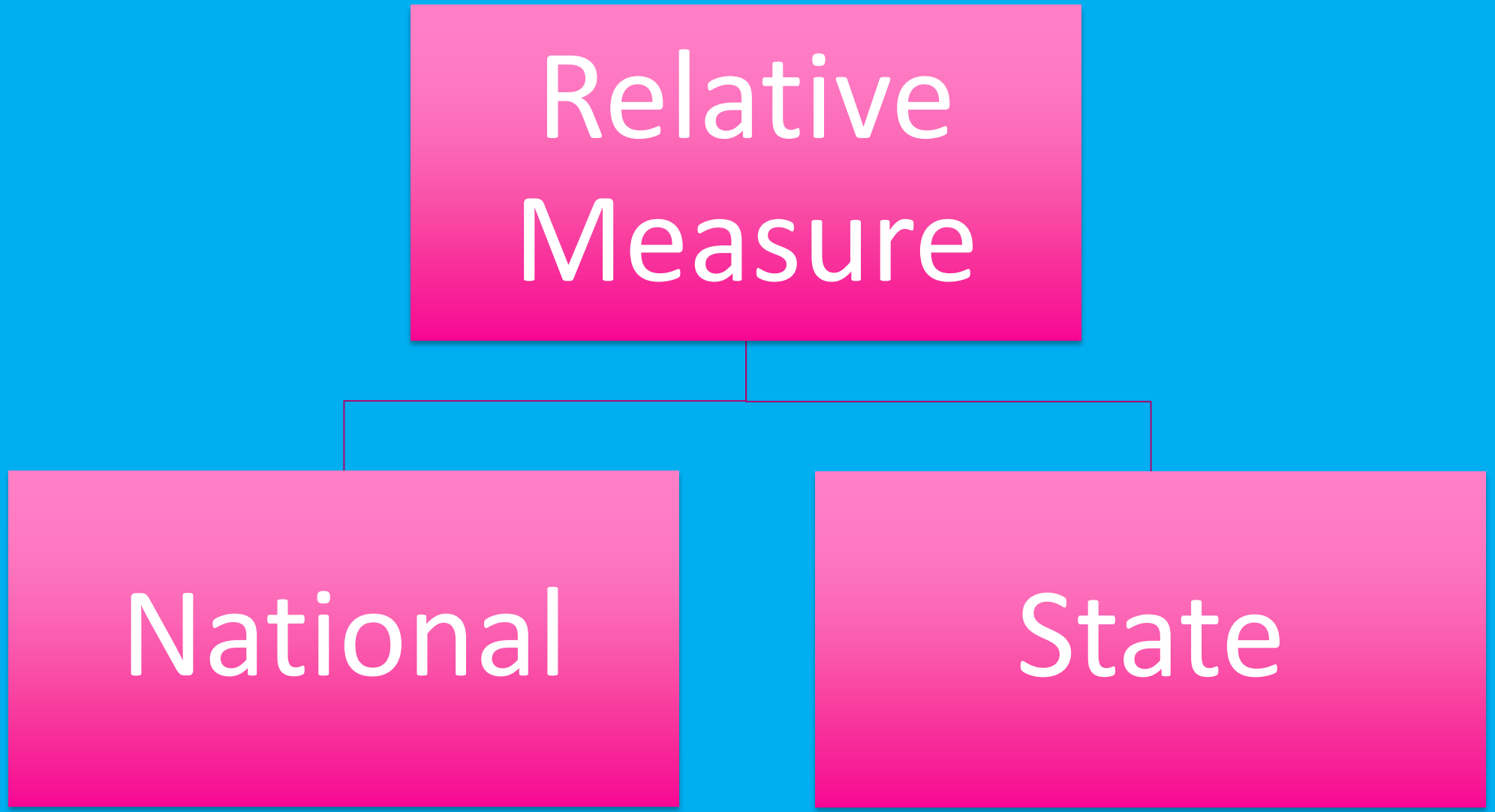
What Neighborhood Indices Exist?

- Area Deprivation Index – HRSA
- Social Vulnerability Index - CDC
- Census Multidimensional Deprivation Index
- Neighborhood Deprivation Index – cancer.gov
- Yost Index
- Childhood Opportunity index
- AARP livibility index

What goes into these indices: ADI vs SVI vs MDI

Characteristic	ADI	SVI	MDI
Income/Poverty	X	X	X
Housing	X	X	X
Employment	X	X	X
Education	X	X	
Racial Demographics & Language		X	
Age Demographics		X	
Health/Disability		X	X
“Stability”			X
“Neighborhood Quality”			X

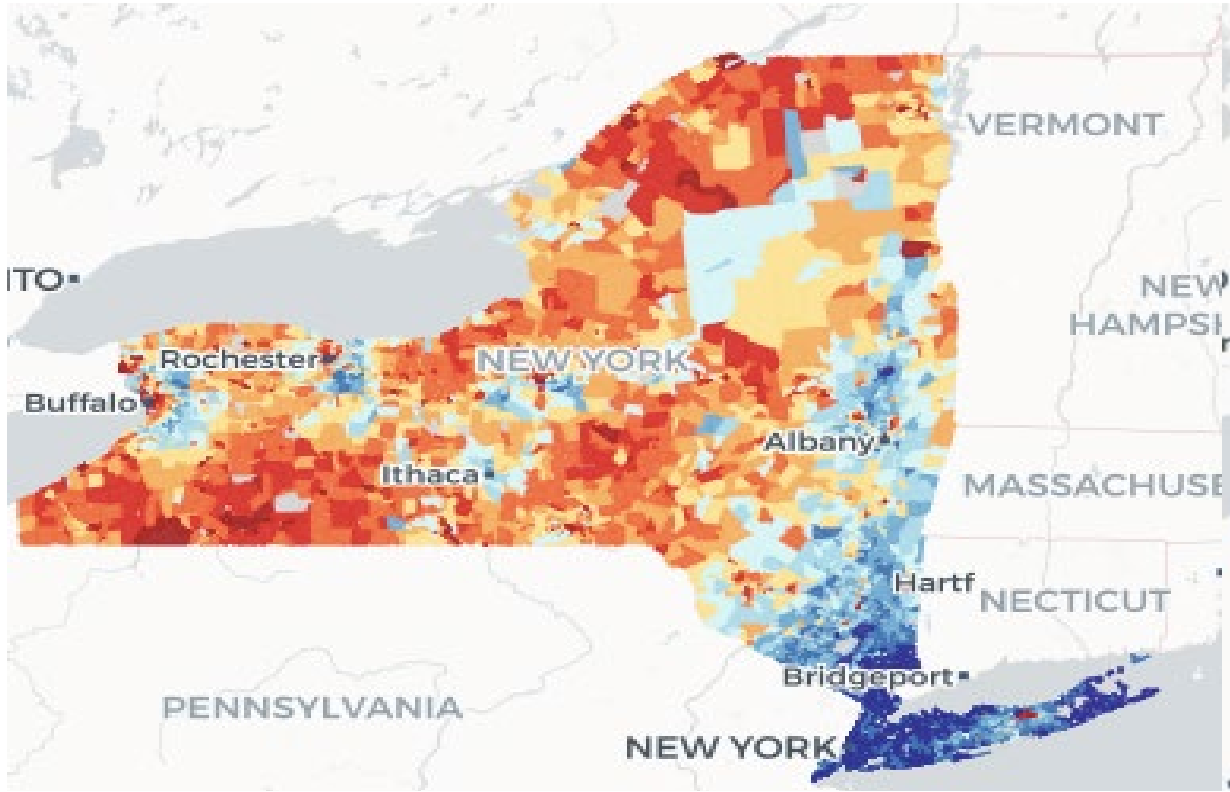
Deep Dive into ADI: How does it work, practically?



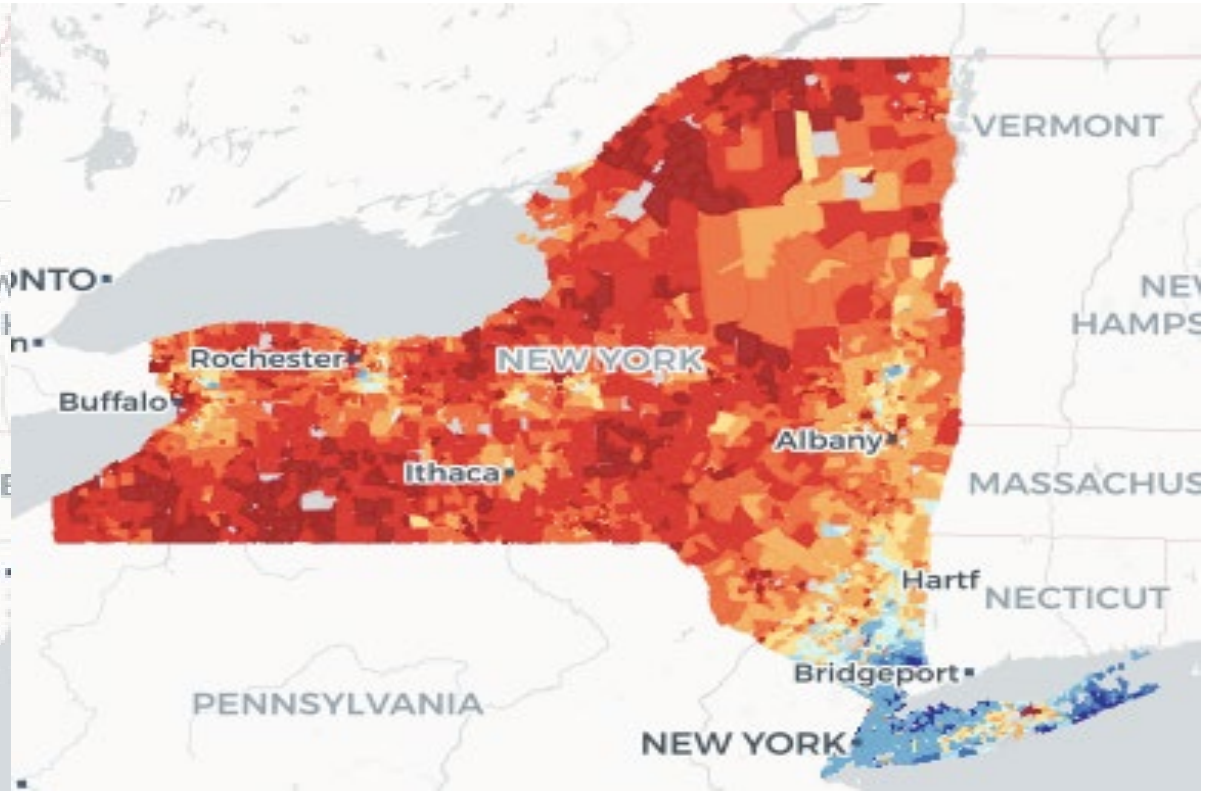
How does this play out in places we know?

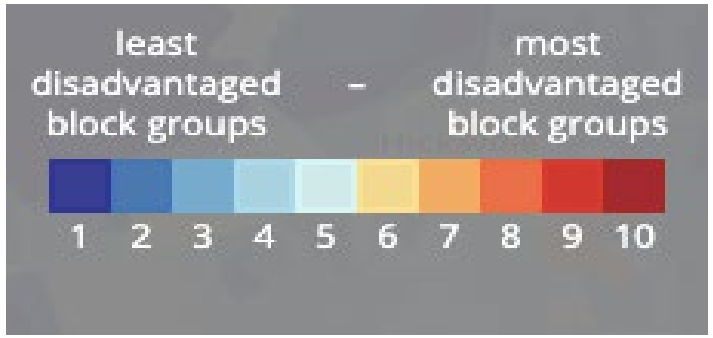
Case study 1: New York

National Deciles



Statewide Deciles





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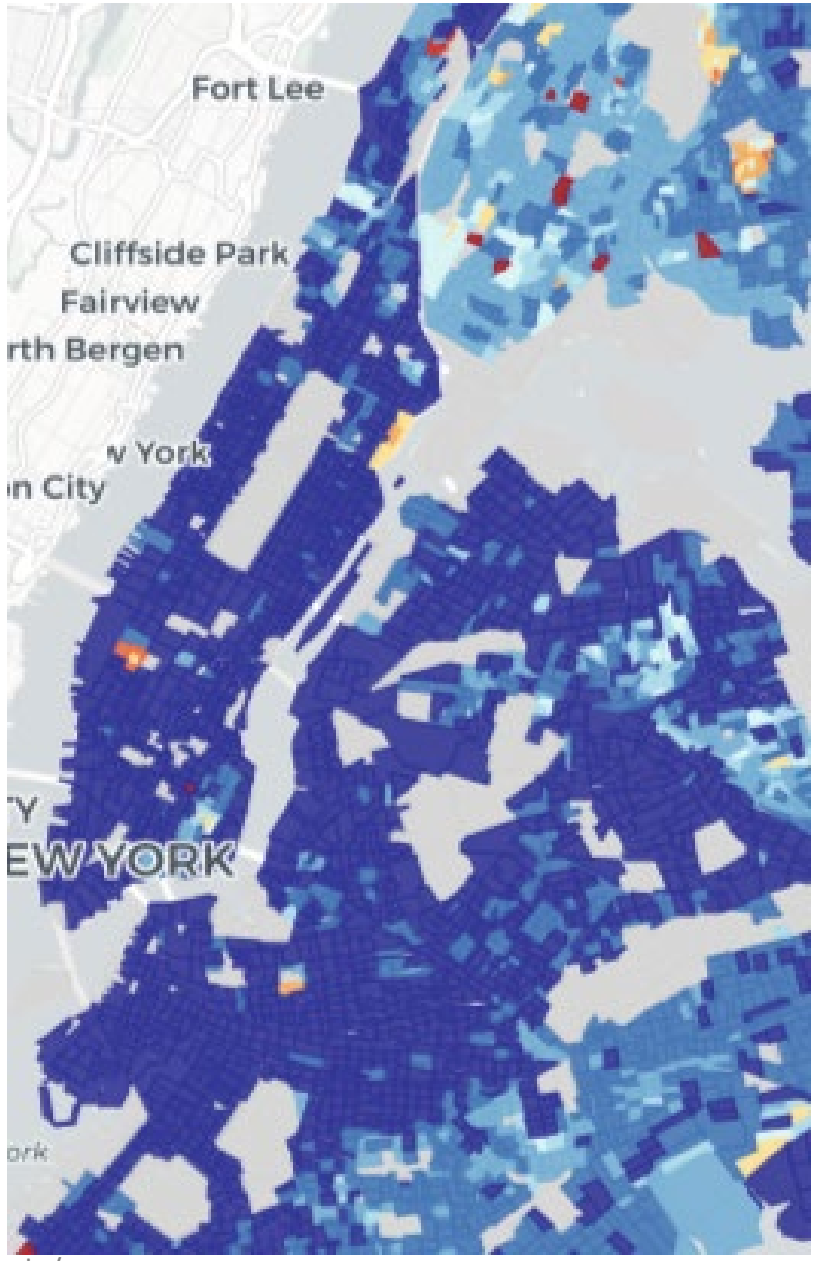
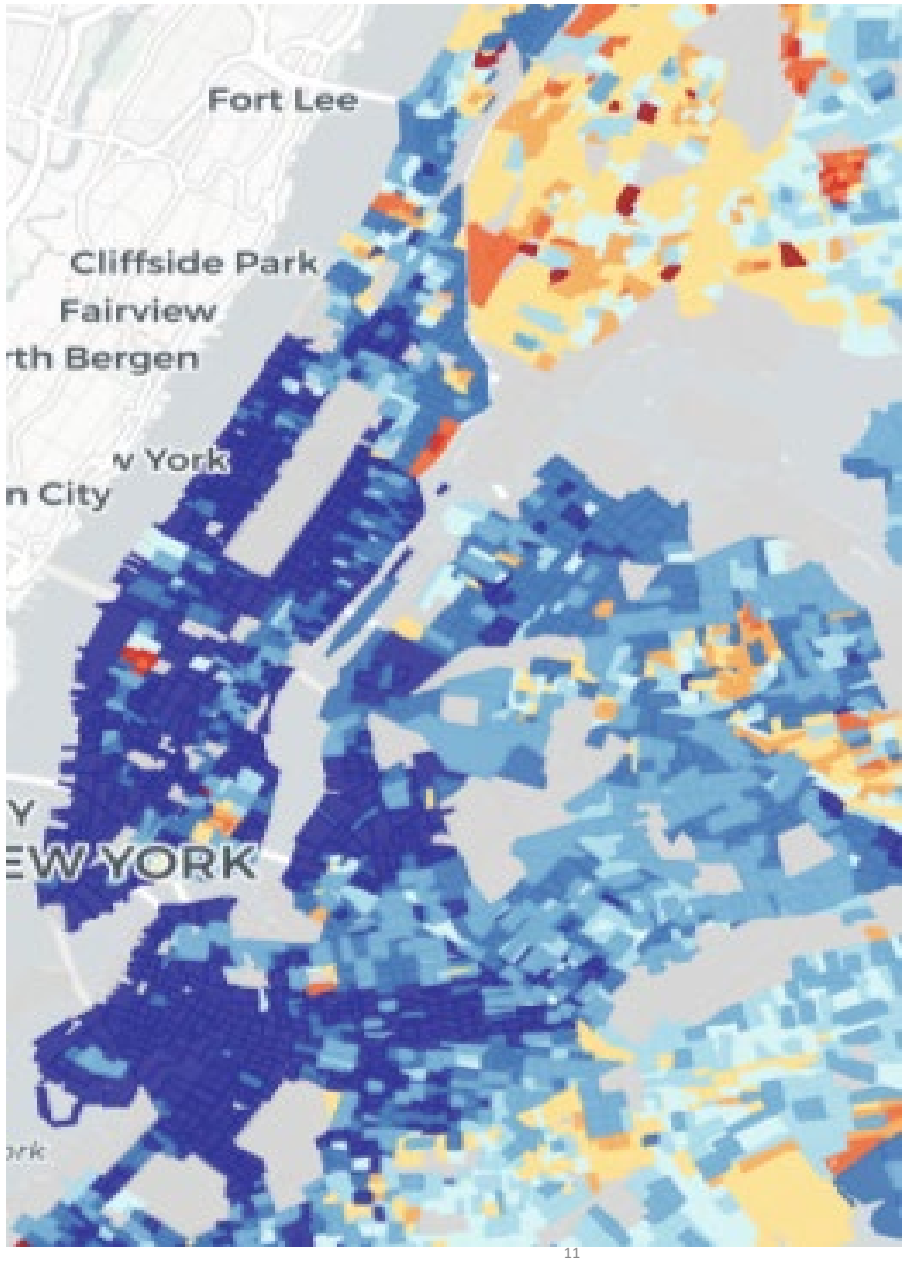
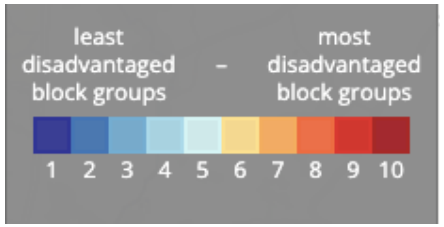
New York City

National Deciles



Statewide Deciles





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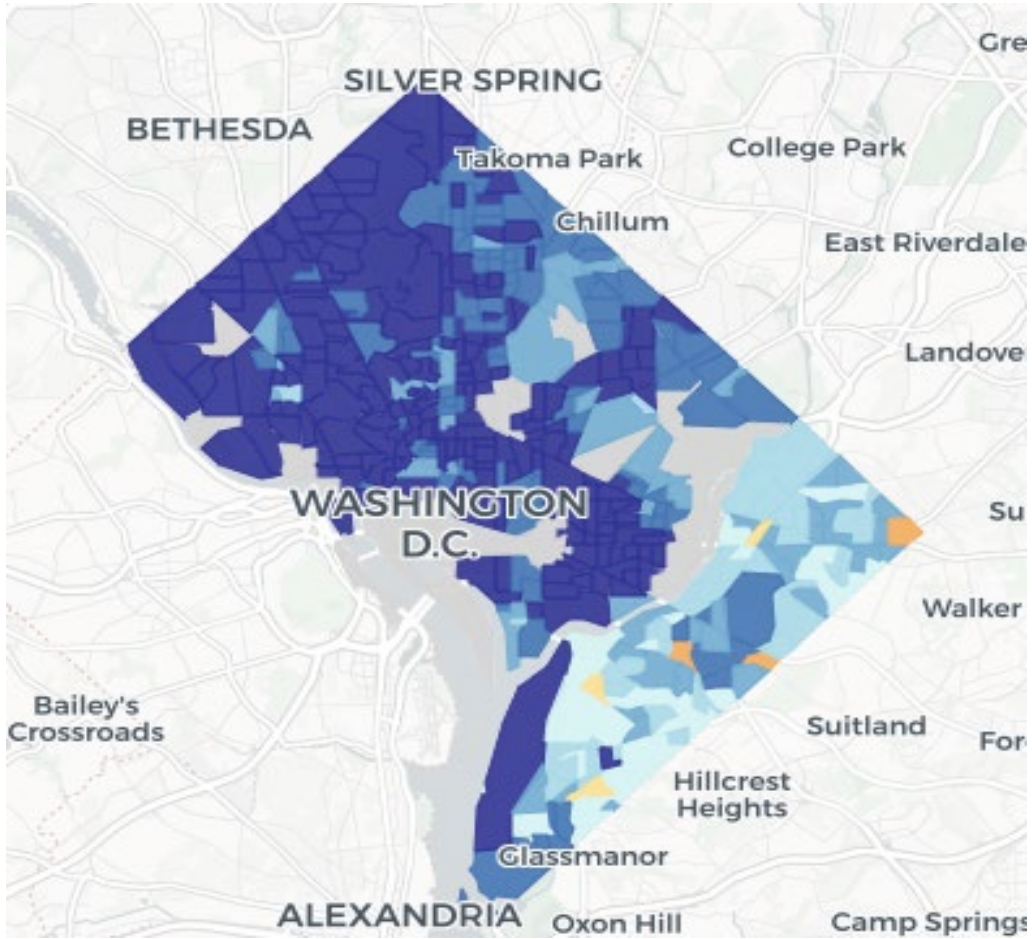
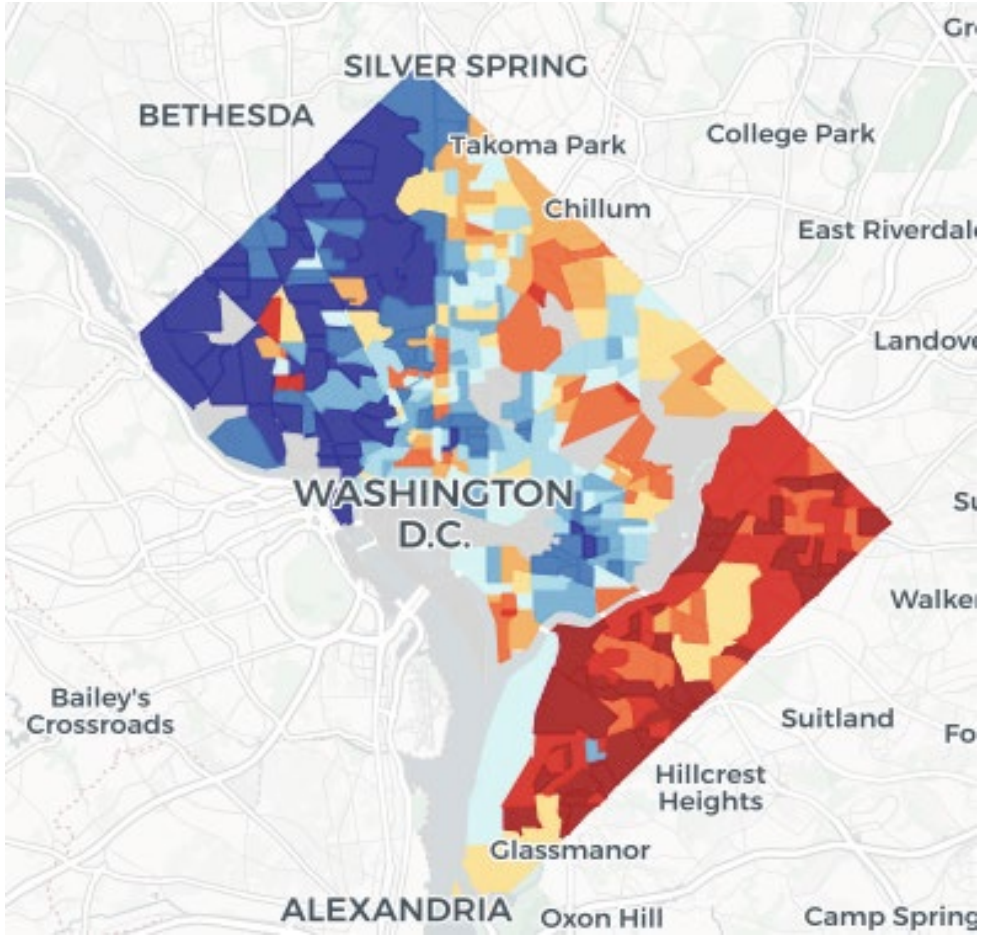
Washington, DC

National Deciles



Statewide Deciles



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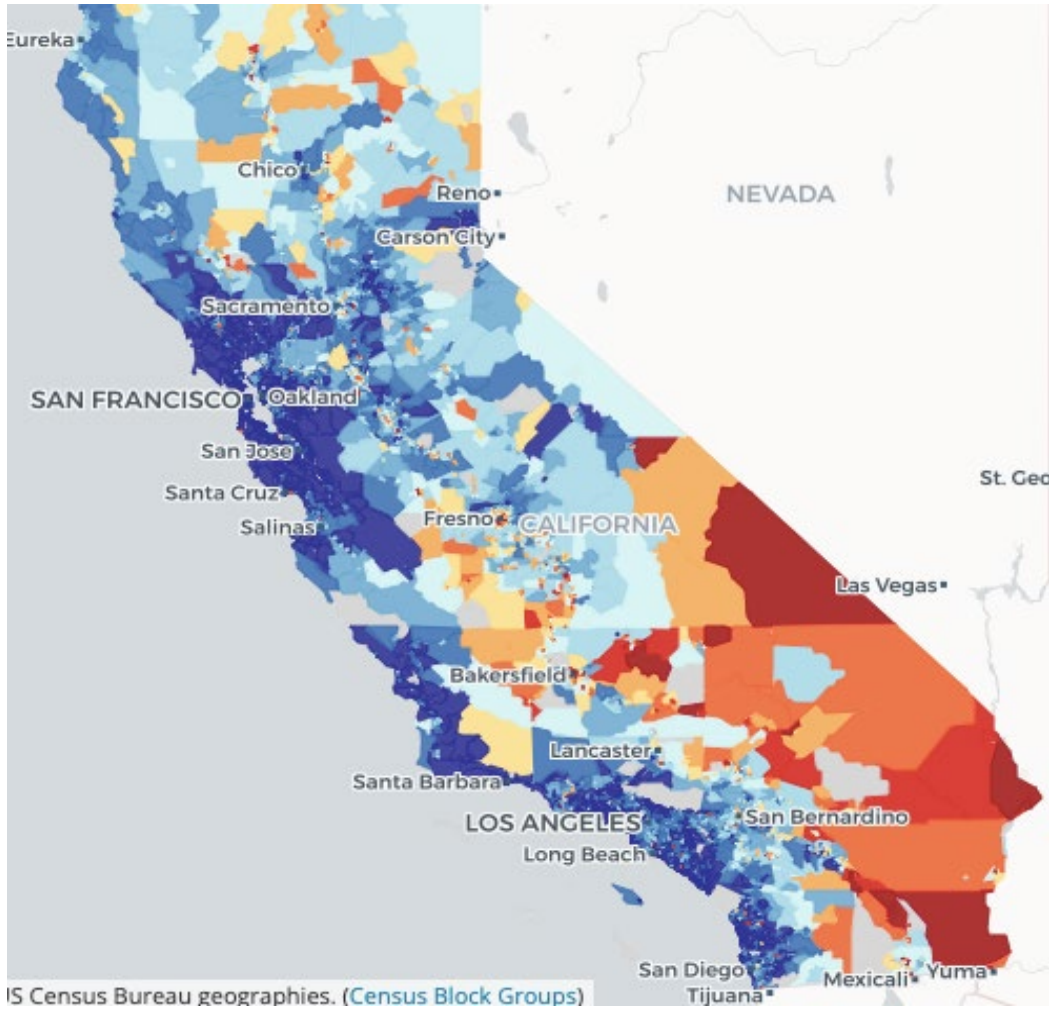
California

National Deciles



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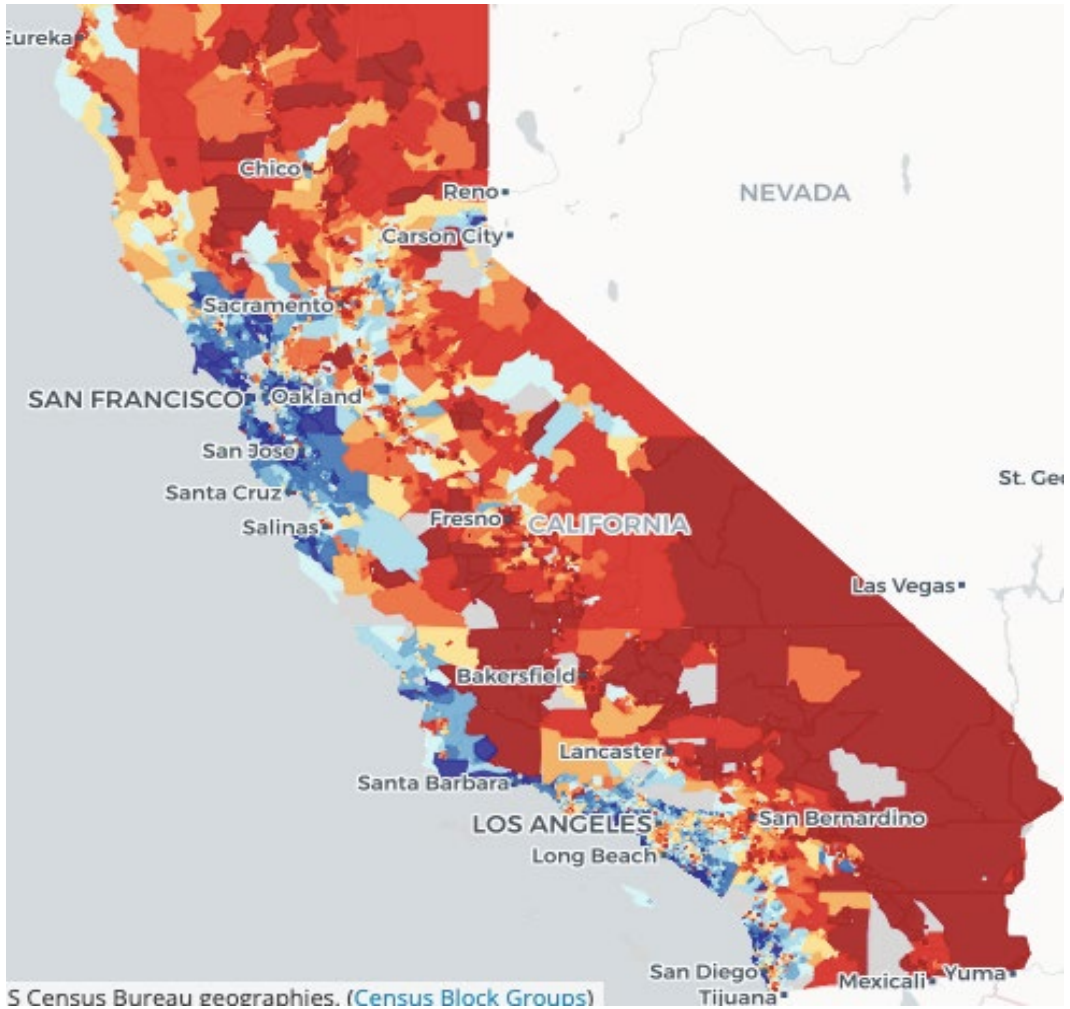

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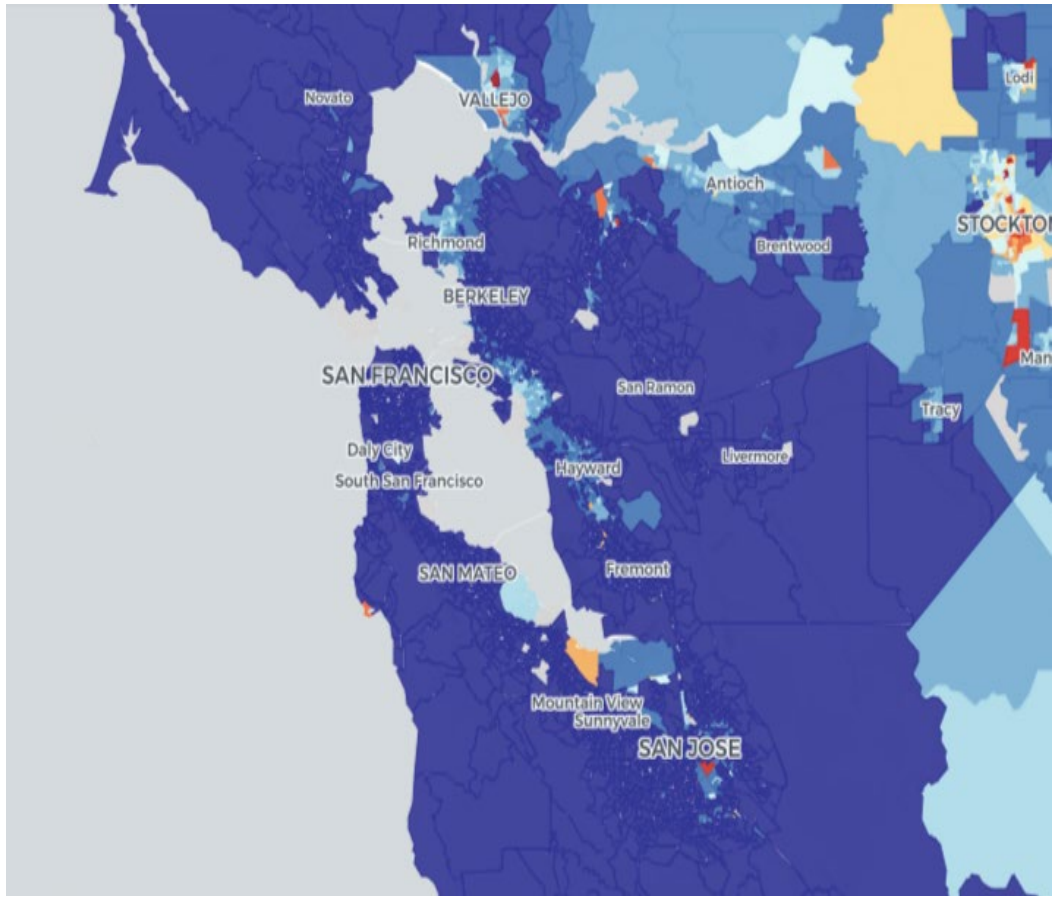
The Bay Area

National Deciles



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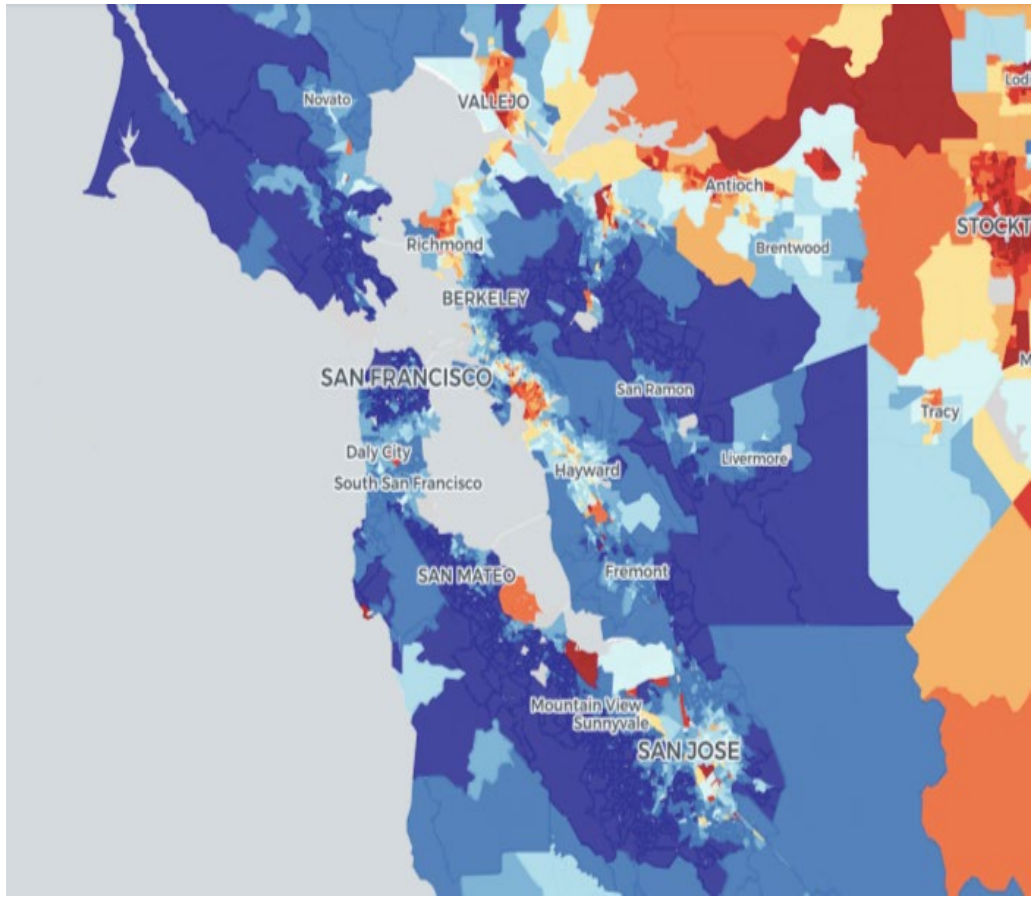

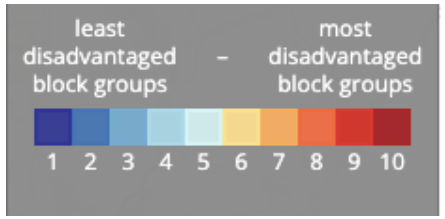

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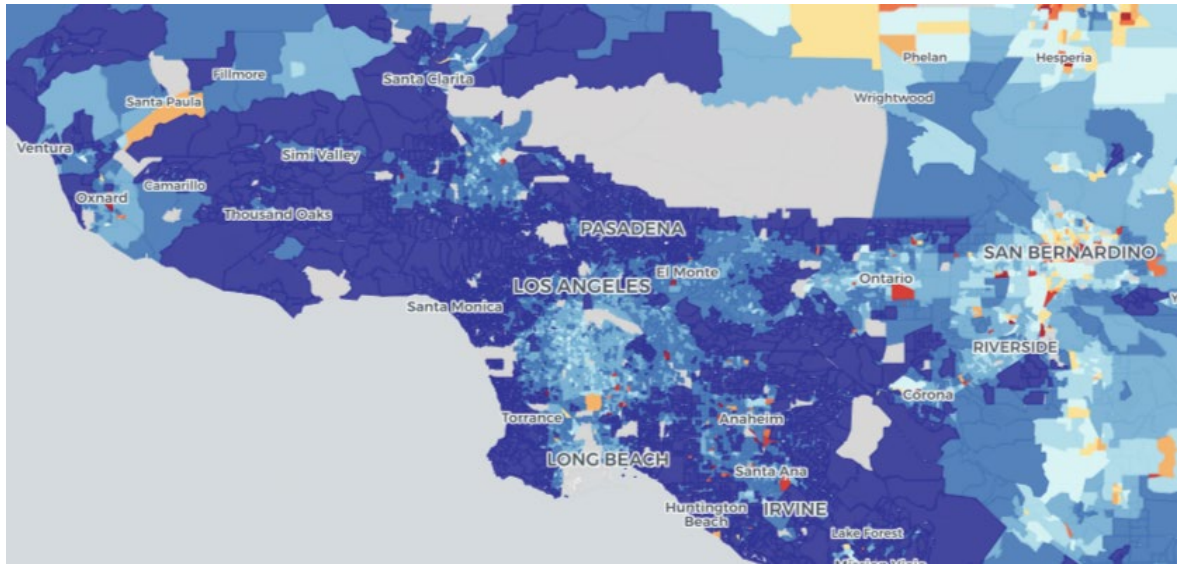
Los Angeles

National Deciles



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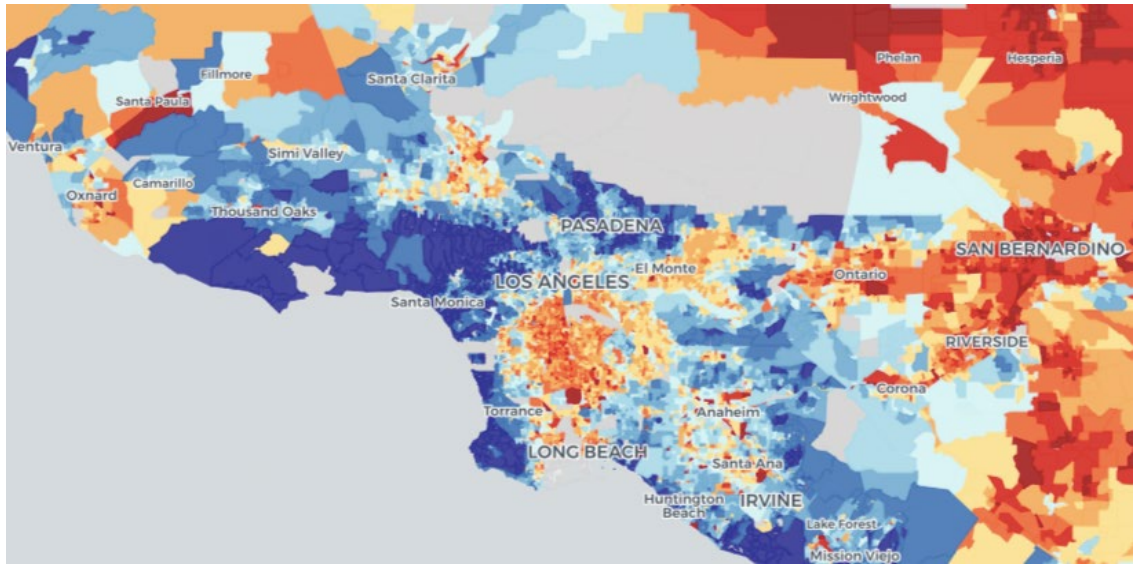

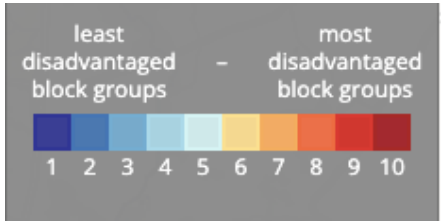

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Conclusions: using the ADI to add equity

Big differences between National and State measures

May not reflect the disparities we see in our communities

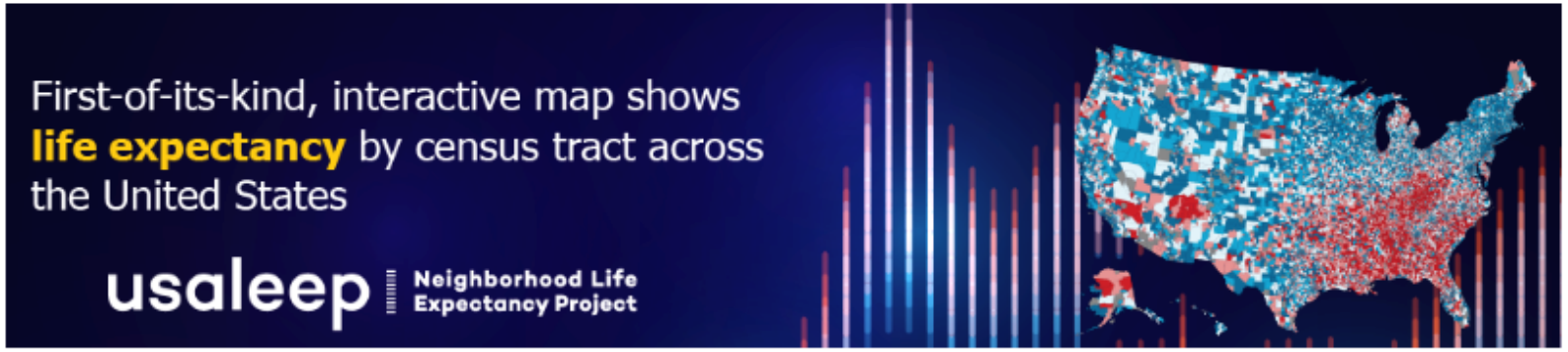
Are there alternatives?

National Vital Statistics System

U.S. Small-area Life Expectancy Estimates Project – USALEEP

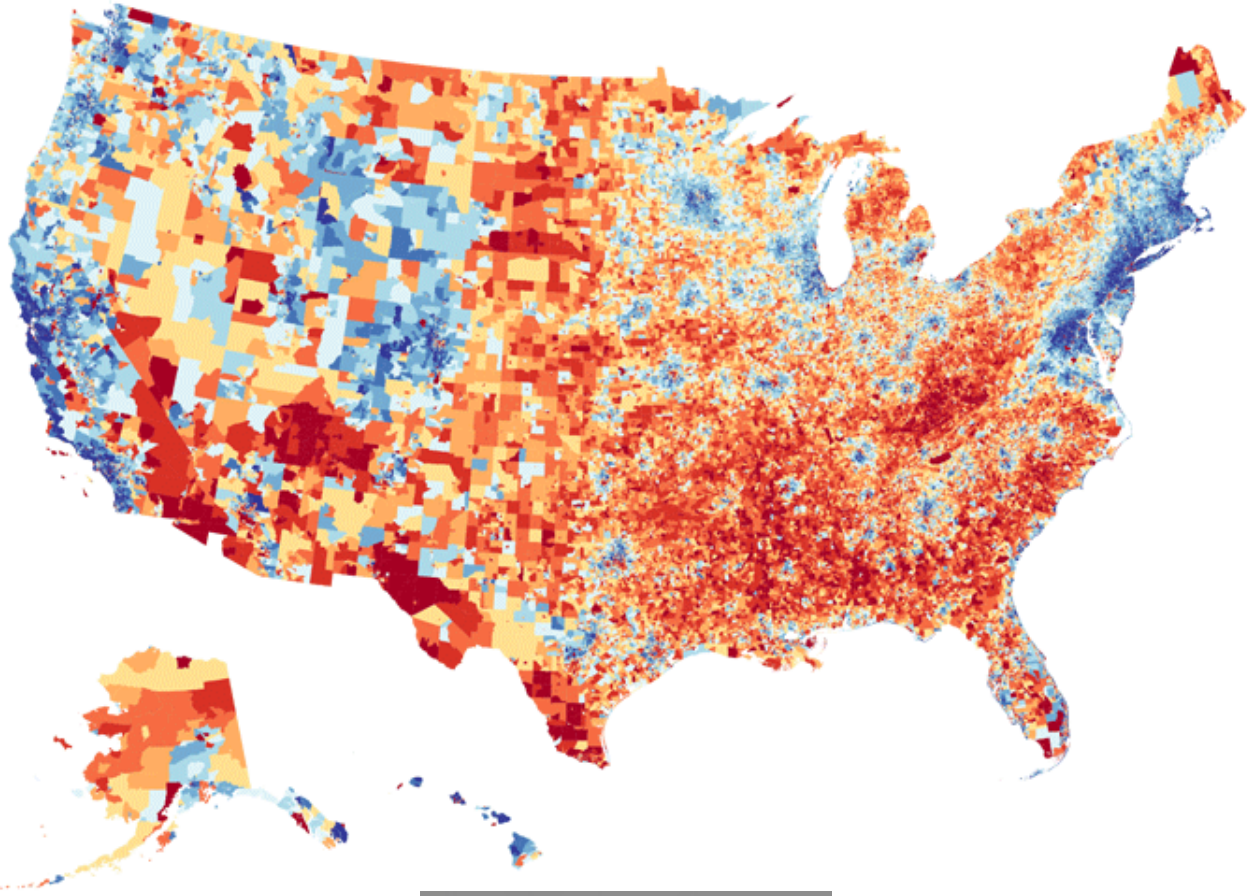
usaleep | Neighborhood Life Expectancy Project

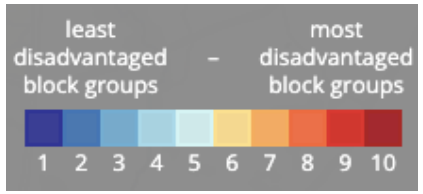
The U.S. Small-area Life Expectancy Estimates Project (USALEEP) is a partnership of NCHS, the Robert Wood Johnson Foundation (RWJF), and the National Association for Public Health Statistics and Information Systems (NAPHSIS) to produce a new measure of health for where you live. The USALEEP project produced estimates of life expectancy at birth—the average number of years a person can expect to live—for most of the census tracts in the United States for the period 2010-2015.



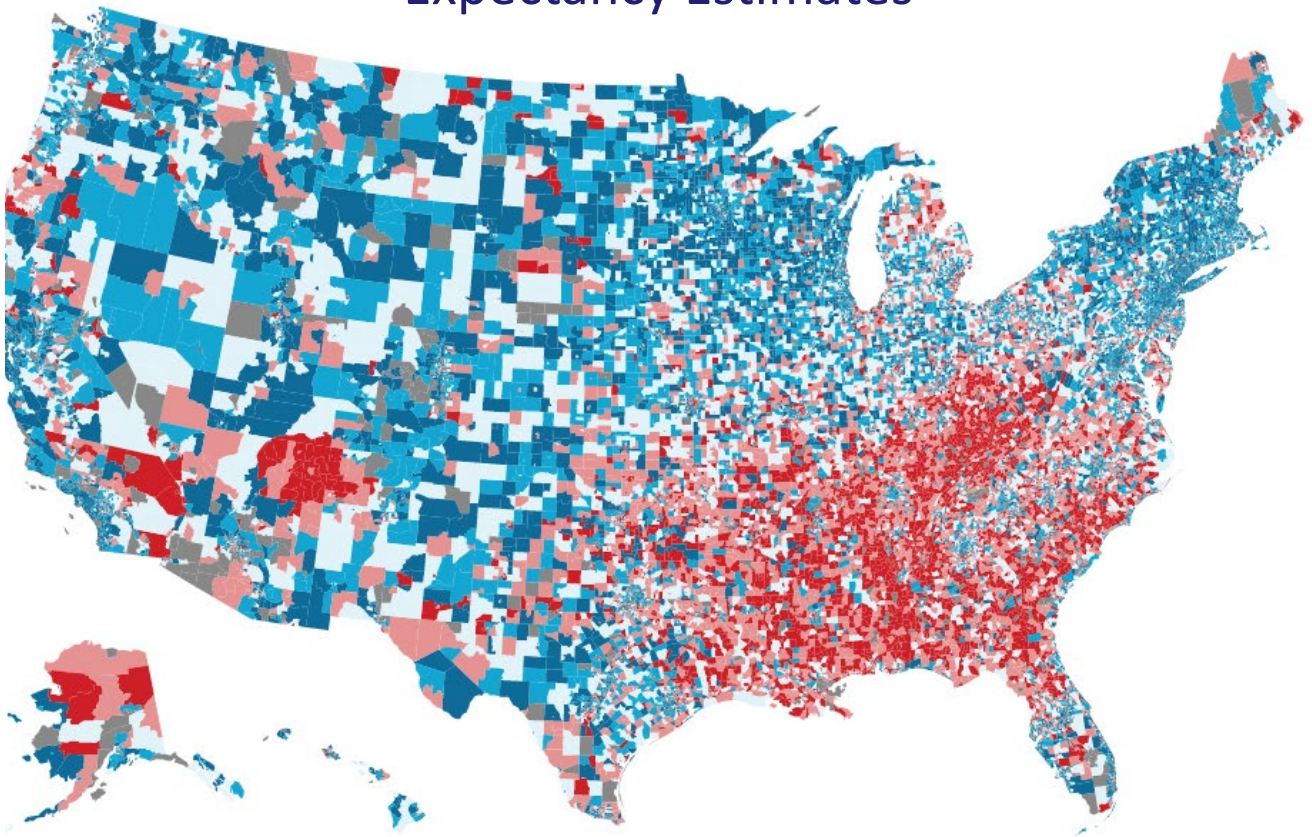
Accessed at: https://www.cdc.gov/nchs/nvss/usaleep/usaleep.html

Area Deprivation Index





United States Small Area Life Expectancy Estimates



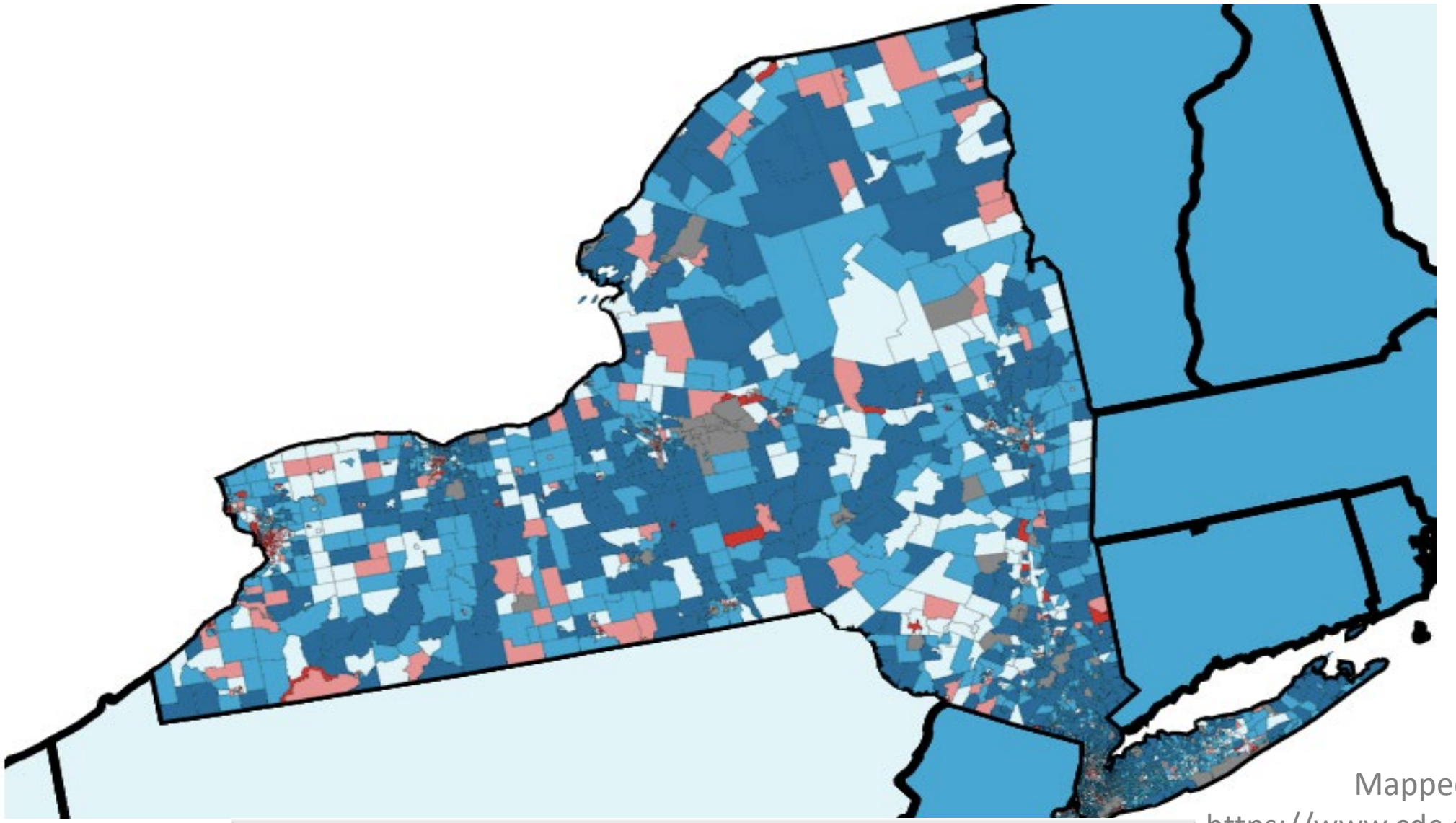
USALEEP

Created by the CDC

Uses vital statistics data

Life expectancy estimates at the census tract level

USALEEP: New York



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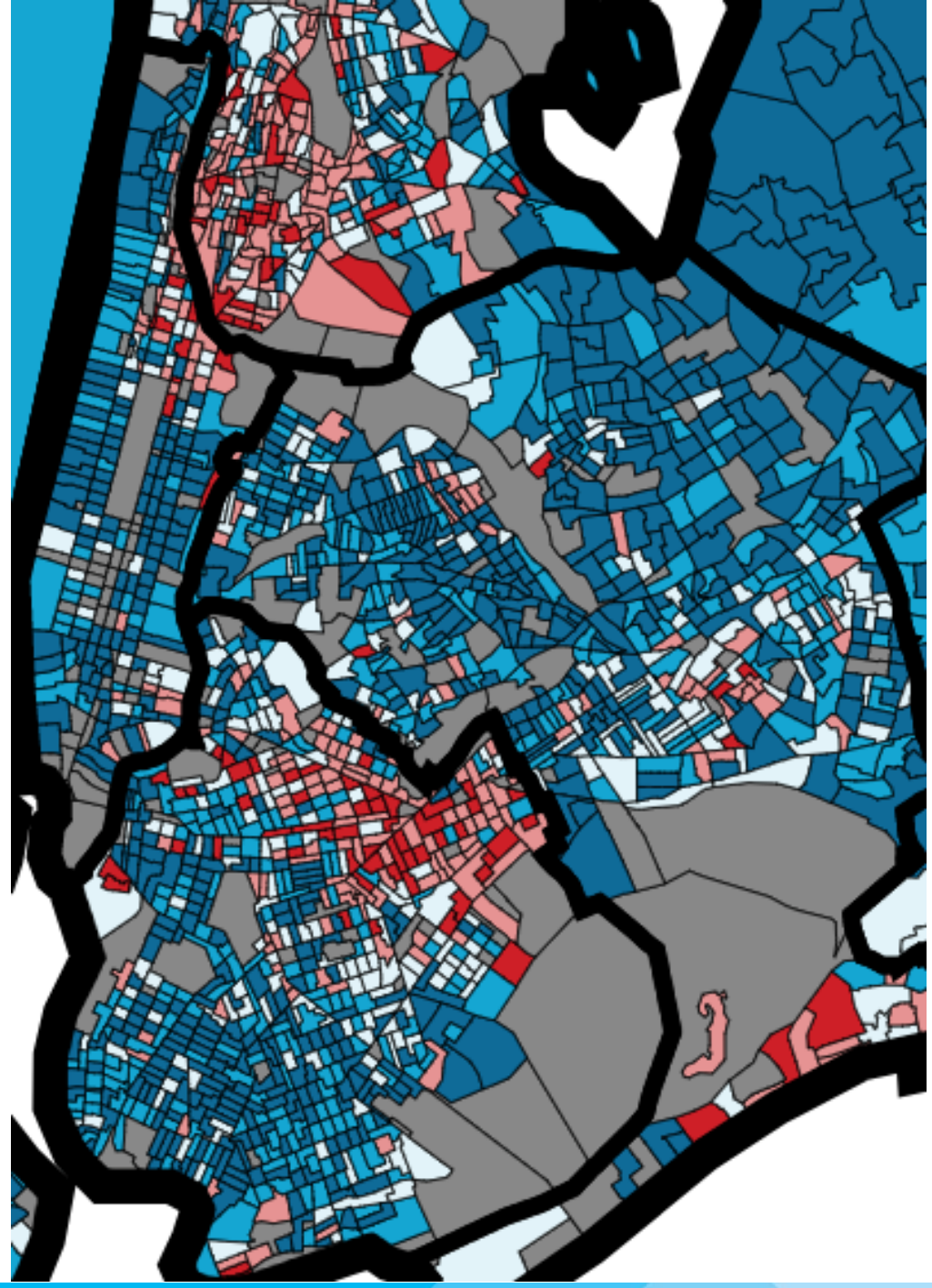
https://www.cdc.gov/nchs/data-visualization/life-expectancy/

USALEEP: New York City

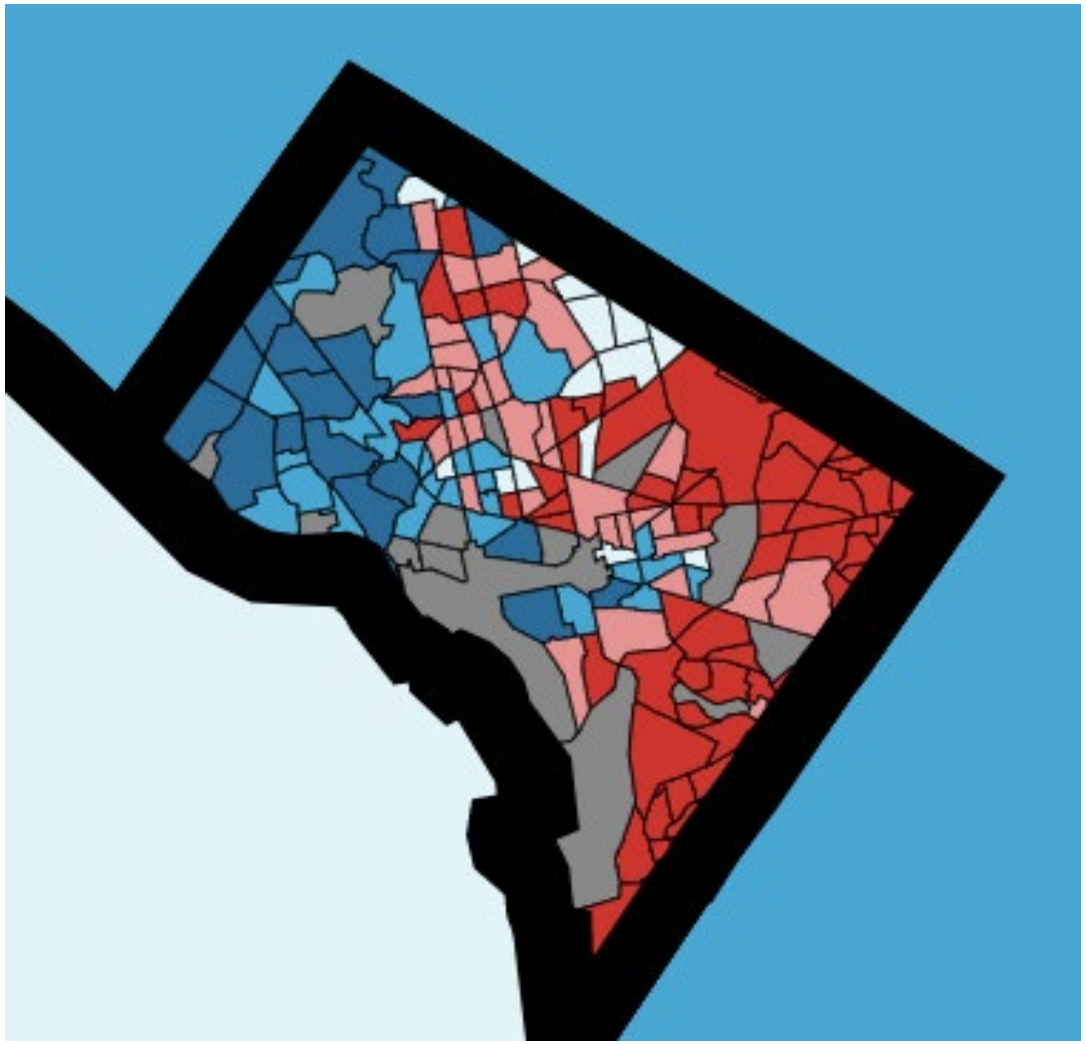
Mapped at:
https://www.cdc.gov/nchs/data-visualization/life-expectancy/



Life Expectancy at birth (Quintiles)

56.9 – 75.1 | 75.2 – 77.5 | 77.6 – 79.5 | 79.6 – 81.6 | 81.7 – 97.5

USALEEP: Washington, DC



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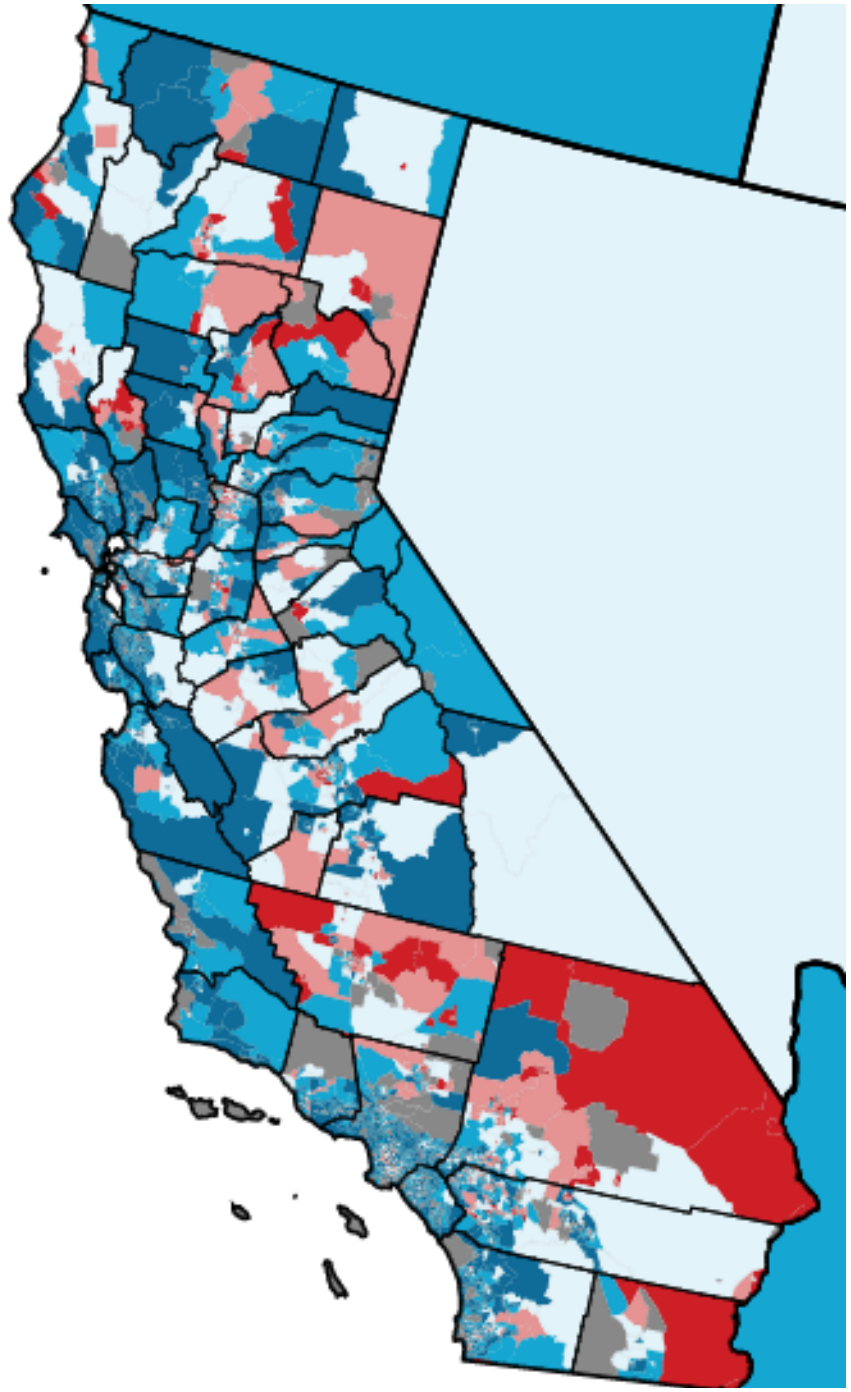
USALEEP: California



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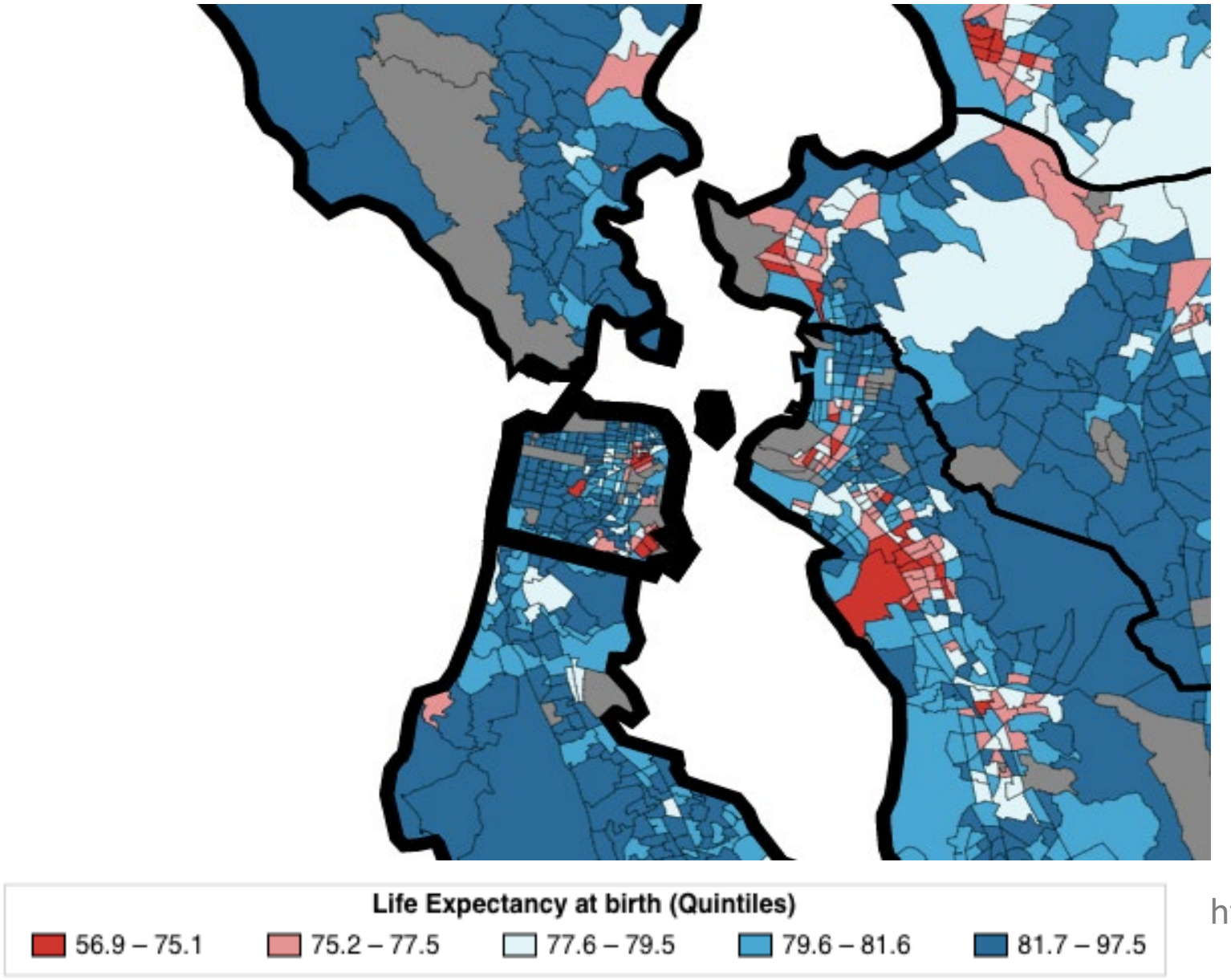
Life Expectancy at birth (Quintiles)

56.9 – 75.1 | 75.2 – 77.5 | 77.6 – 79.5 | 79.6 – 81.6 | 81.7 – 97.5

USALEEP: The Bay Area



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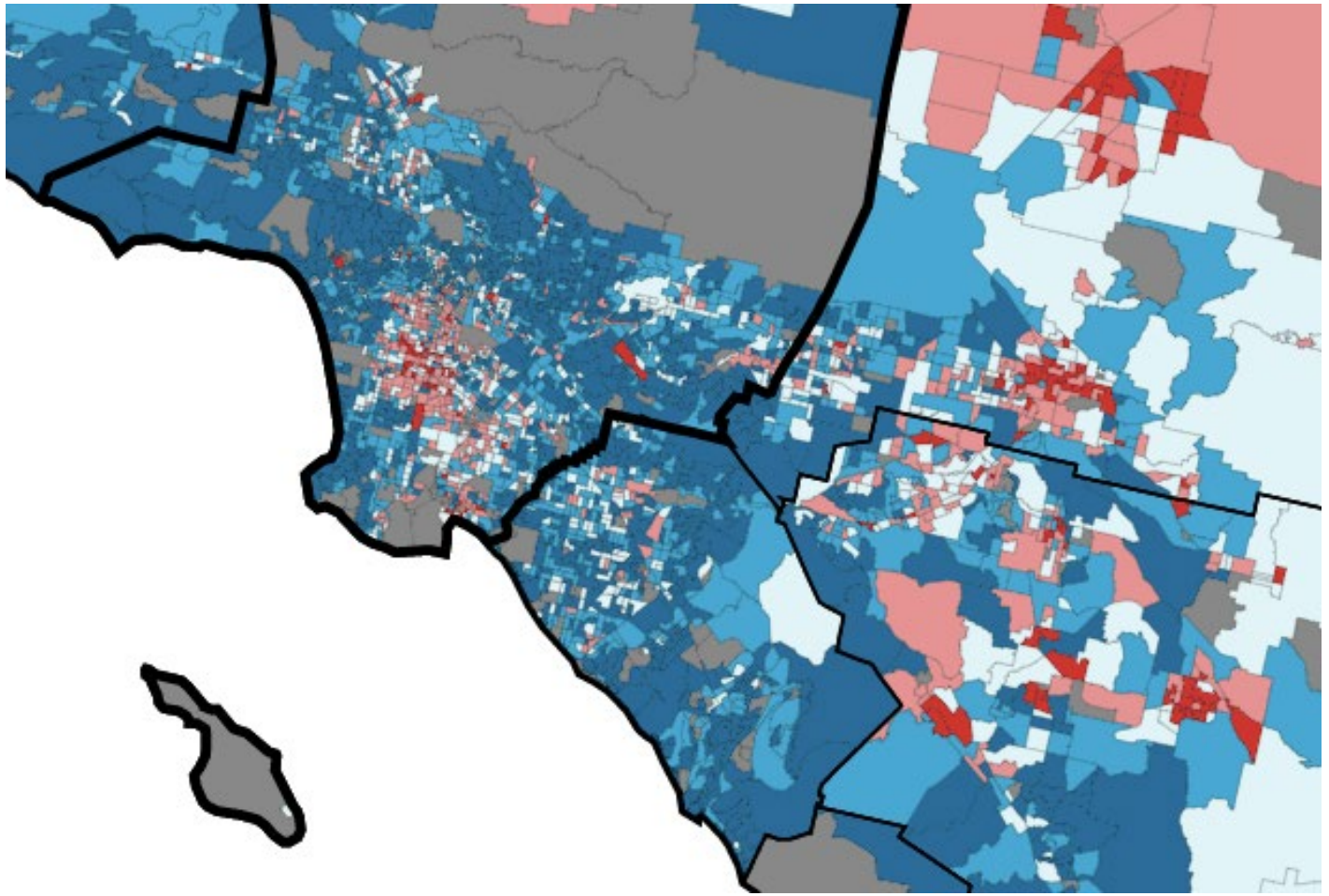
https://www.cdc.gov/nchs/data-visualization/life-expectancy/

USALEEP: Los Angeles



Mapped at:
https://www.cdc.gov/nchs/data-visualization/life-expectancy/

Implications

- Incorporating equity into value-based payments is a great idea
- The ADI and other available indices have significant limitations
- Disparities may be better reflected with life expectancy data

Questions, comments, contact

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What is Oak Street Health?

We are:

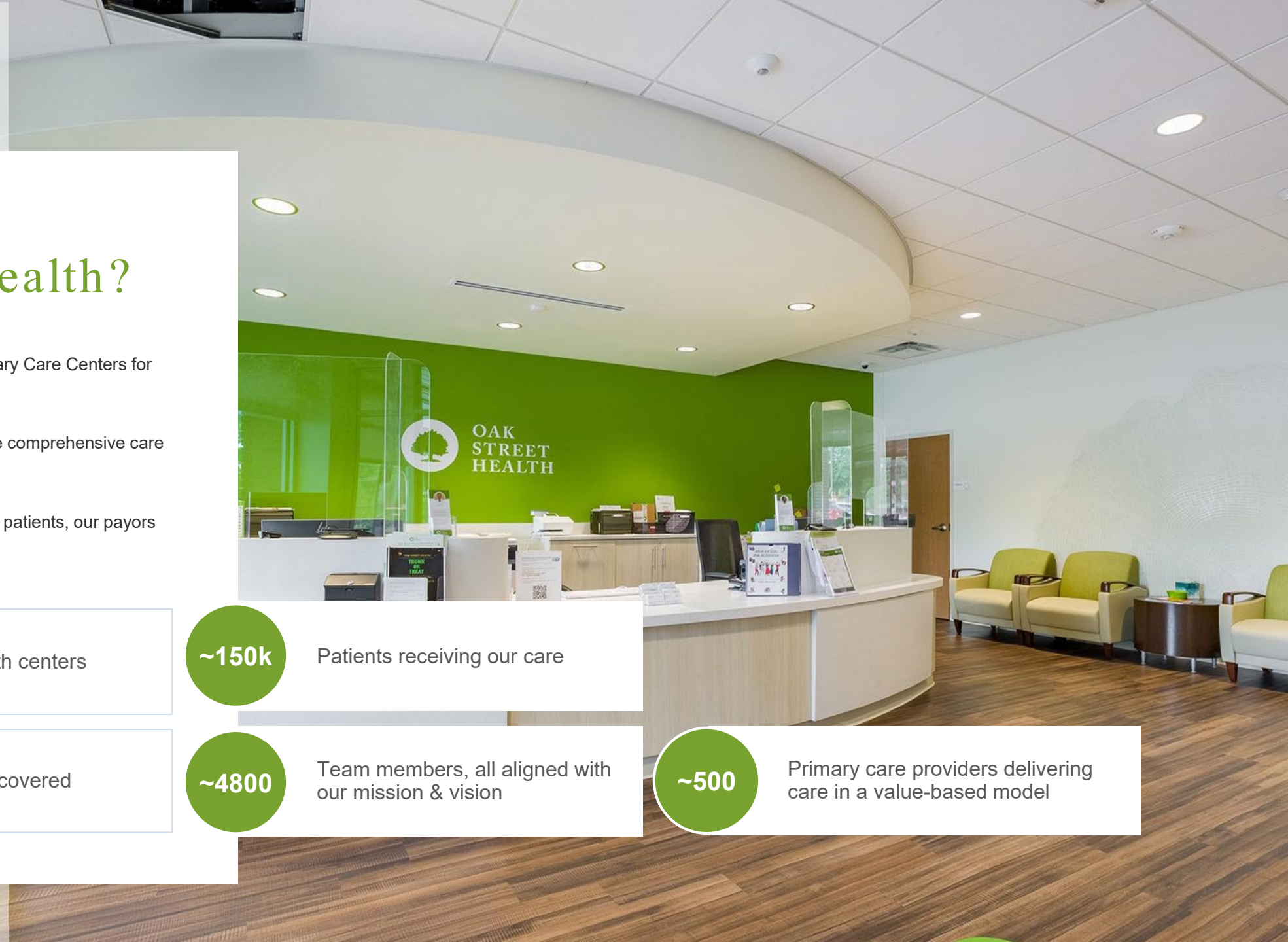
- A Patient-Centric Network of Primary Care Centers for Medicare-Eligible patients

We leverage:

- The Oak Street Platform to provide comprehensive care for our patient population

We improve:

- Experiences and outcomes for our patients, our payors and our providers



130+ Oak Street Health centers

20 States currently covered

~150k Patients receiving our care

~4800 Team members, all aligned with our mission & vision

~500 Primary care providers delivering care in a value-based model

Oak Street Health locations

Currently serving 150,000+ Medicare beneficiaries and growing.

- About 45% of Oak Street patients are dually eligible for Medicare and Medicaid

Alabama	2	New Mexico	4
Arizona	3	New York	10
Georgia	5	North Carolina	8
Illinois	27	Ohio	11
Indiana	8	Oklahoma	5
Kentucky	1	Pennsylvania	10
Louisiana	5	Rhode Island	4
Michigan	11	South Carolina	3
Mississippi	2	Tennessee	4
Missouri	4	Texas	16

Within Our Workforce :

71%

racial minority workforce at OSH vs 38% in U.S. healthcare

59%

racial minority providers at OSH vs 45% in U.S. healthcare

58%

female managers at OSH
vs 40% in U.S. management positions

Who are Oak Street Patients?

68 average age

86% of patients have one or more chronic conditions

7+ average number of medications

>50% of patients identify as African American, Latino, or Indigenous

42% of patients are dually eligible for Medicare and Medicaid

~50% of patients have a housing, food, or isolation risk factor

Our model leads to better clinical outcomes for our patients and better results for the broader health system

5-Star HEDIS Level Performance[1]:

85%
Diabetic patients with well-controlled diabetes (Hemoglobin A1C of <9)
+6% above industry 5-star benchmark

87%
Patients with a breast cancer screening
+12% above industry 5-star benchmark

88%
Patients with colorectal cancer screening
+14% above industry 5-star benchmark

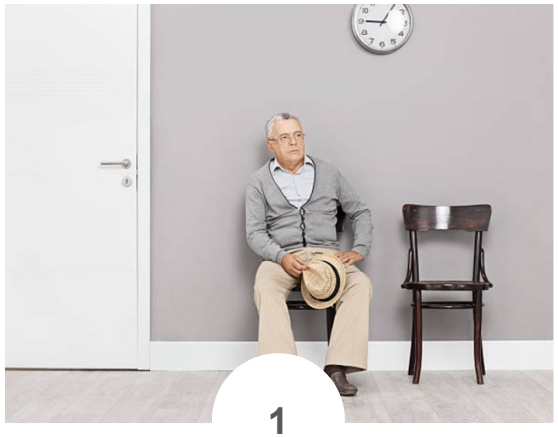
1. For patients that completed a 2021 wellness review visit

Social determinants of health as both a foundation of care and our commitment to equity

92% of Oak Street Health patients have been screened for SDOH

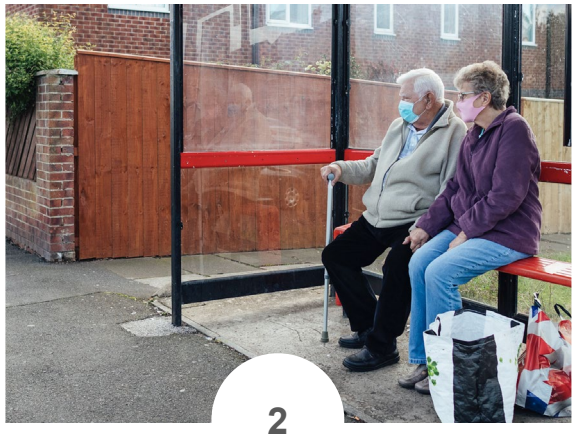
60% of Oak Street Health patients experience a SDOH

50% experience multiple SDOH risk factors



1

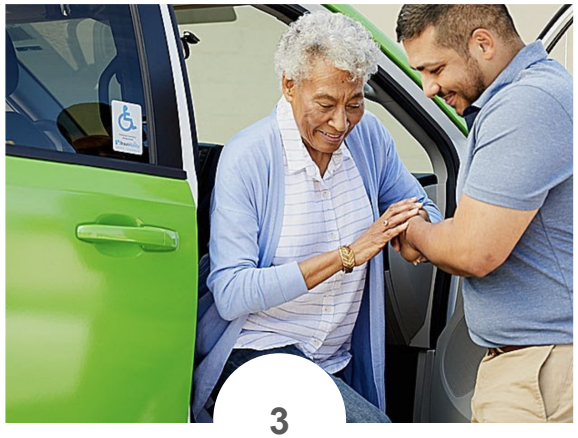
Our goal is to address any barrier that gets in the way of a patient getting care.



2

In our population, common barriers include:

- Lack of transportation
- Unstable housing
- Unsupportive/dangerous home environment
- Lack of access to nutritious food
- Gaps in education/literacy/health knowledge
- Behavioral/mental health barriers
- Minimal financial resources
- Lack of social connections & friendships.



3

Our model invests in all of these most common SDOH items -- they are not clinical, but they are important to clinical outcomes. These topics are addressed by our model directly via:

- Social work support
- Behavioral health support
- Including transportation in our care model
- Our community room programming
- Home visits program

4

The integration of SDOH into our model allows these services to be accessed more conveniently and it contributes to the improved clinical outcomes we deliver.

Care Model Deep-Dive: Integrated Behavioral Health
Taking care of our patients' population health needs

Mental Health in the US[1]

1 in 5
US adults who experienced a mental illness in 2020

>17 million
US adults who experienced delays or cancellations in mental health appointments

At Oak Street Health

All patients
screened for behavioral health at initial visit and annually

All centers
provide access to behavioral health care

Collaborative care
Behavioral health is not stigmatized or siloed; it is a part of whole-person care at OSH

43%
OSH patients seeing a significant reduction in depressive symptoms through Oak Street collaborative behavioral health care model[2]

vs 19% of patients in traditional behavioral health care model[3]

1. National Alliance on Mental Illness, 2020 data
2.Oak Street Health patient data following 6-month study
3 JAMA 2002, "Collaborative Care Management of late-life depression in the primary care setting"; data based on 12-month study

Oak Street Health has created a model that invests upfront to keep our patients happy, healthy, and out of the hospital

Challenges in Primary Care Settings	Fee For Service	Oak Street Health
Not enough time with patients	**2,000+** Avg doctor panel[1]	**~500** Patient panel
No patient specialization	Accepts all ages	Medicare-eligibles focused
No non-facing patient time	No time to plan for care outside the exam room	**>1/3** Provider time used to coordinate care, close care gaps, & proactively plan
No support beyond primary care	Minimal focus on social determinants of health	Behavioral health, pharmacy, home-based support, well-being programs, & social worker assistance
Limited technology integration	Limited EMR use focused on billing & record-keeping; no time to engage with population health overlays	**4 hrs/day** Average time that clinical staff use Canopy, our proprietary tech platform, optimized to run the Oak Street care model

1. Source: Journal of General Internal Medicine

Value-Based Care allows for critical investment in primary care

!

In 2018, hospitalizations were >60% of Medicare expenditures[1]…

…while Primary Care spend accounted for only ~3%

51% reduction in hospital admissions[2]

42% reduction in 30-day readmission rate[2]

51% reduction in ED visits vs. Medicare FFS benchmark[2]

NPS of 90[2]

We invest in proactive primary care, spending more than 3x the average[3]. We remove reactive and more-expensive costs from the system

Oak Street Health has demonstrated improved quality and lower cost across plan types (HMO, PPO, Open Access, SNP, MMP) and programs (MA, MSSP, DC and Medicaid)

1. Source: CMS and Kaiser Family Foundation
2. Please see our S1, filed 2/8/2021, for information on how these statistics are calculated
3. Based on our 2021 spend (please see our 10K, filed 2/28/2022) vs industry average (sourced from Kaiser Family Foundation)

Oak Street Health Federal Priorities

- Link Complexity of Patients to Quality Metrics in Medicare
- Support the new CMMI ACO REACH Model
- Integrate behavioral health into primary care

Operating For Equity

Examples From The Field

Rob Fields, MD MHA
EVP, Chief Population Health Officer
Mount Sinai Health System

Mount Sinai

Mount Sinai Health Partners: Clinically Integrated Network

~ 3,100 full-time faculty physicians

~ 1,300 committed voluntary physicians

8 hospitals spanning Manhattan, Brooklyn, Queens, and Long Island

55 urgent care sites covering Manhattan, Brooklyn, Queens, and Long Island

Geographic access and coverage across the 5 boroughs, Long Island, and beyond

Integration with ASCs & FQHCs across New York City

Over 400 community locations

45 skilled nursing facilities that collaborate with our network

Committed to a vision of transforming healthcare in New York towards value-based care and population health

The Data Problem…

base case…

38% of our attributed lives had "blank" race/ethnicity fields in Epic
(employed sites)

Education and Training

Measurement and Re-measurement

Supplement with External Data (for reporting only)

current…

95% of our attributed lives have reportable data for Race and ethnicity

If the moral argument had been enough, we would have been doing it already.

Equity As Strategy

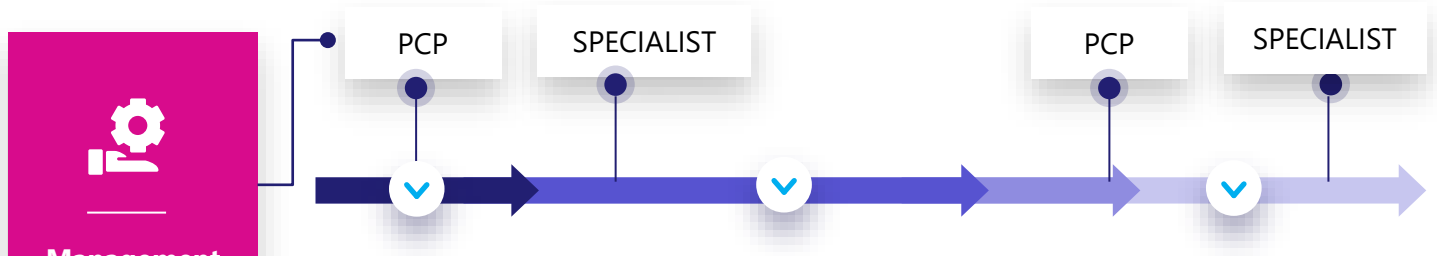
52% of our attributed lives across all contracts identify with a racial or ethnic minority

(with 38% unknown; most of the unknowns were in our full risk Medicaid population)

There is no path to value-based success without achieving equitable outcomes.

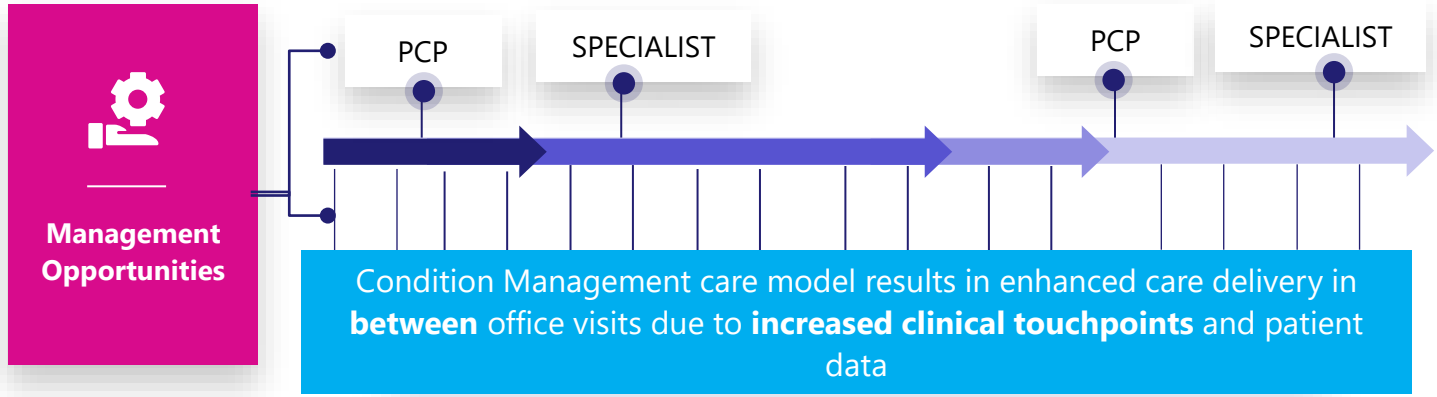
Condition Management Program

Traditional Care Model



Episodic care model often leads to incremental adjustments towards achievement of clinical outcomes due to less patient data and **few clinical touchpoints**

Condition Management Care Model



Condition Management care model results in enhanced care delivery in **between** office visits due to **increased clinical touchpoints** and patient data

Condition Management Program

Mission

The Condition Management program focuses on patient-centered clinical services using innovative technologies that improves access to care, positively impacts health determinants, and improves overall clinical outcomes.

Through services such as remote patient monitoring, therapeutic optimization and clinical coaching, we strive to help patients monitor, manage, and maintain their conditions.

- Currently serving over **700 patients** for hypertension, heart failure or COVID management. In 2022, will expand to diabetes, pulmonology and maternity.
- **Dedicated care team** consisting of a clinical pharmacist, dietician and patient coordinator
- Devices are **easy to use** – no additional Wifi or technology required from patients
- Strong focus on health equity and **reducing health disparities**

Remote Patient Monitoring — Hypertension and Heart Failure

The Condition Management Program provides pharmacy co-management services across the health system through a virtual department. A core component of the program is **remote patient monitoring**. Clinical pharmacists **enroll, monitor and manage patients** with their collaborating providers. The program, has over 700 patients enrolled across 17 practices.

- Bluetooth-enabled devices and cellular data hub

- How it works:
  - Patient plugs in the data hub, keeps the devices within 20 feet
  - Readings transferred from the device to the hub, analyzed in vendor's cloud, and uploaded to EPIC EMR
  - Notifications generated for out-of-range values based on pre-determined thresholds, which can be adjusted at any time by the referring provider

RPM as a Tool For Driving Equitable Outcomes

Consider the effect of the digital divide

"Low tech" design with data hub improves access to RPM

Use of registries for enrollment targets

Do not just depend on physician referral and those that come in for an appointment

Measure outcomes by race and ethnicity

Not just clinical outcomes but also process measures such as enrollment and retention data

Continuous Improvement Model

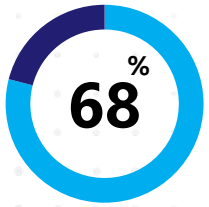
PDSA with equity as one of the goals

Program Metrics
Health Equity, Clinical Outcomes, Utilization

Metrics

Reduce Health Disparities	Clinical Outcomes	Utilization Outcomes

- **52% of patients have a median household income of <50k**
- **73% of participants are Black or Hispanic**



Value Based Care patients had a blood pressure of <140/90 at three months

On average, 7 point reduction in SBP at three months

76.1 % reduction in the odds of an inpatient admission compared to usual care cohort matched on age, race, sex and prior utilization

Looking Ahead…

In 2022, we will focus heavily on our high-risk maternity population to continue to drive clinical outcomes and reduce health disparities.

- In NYC, Black women are **8-12x** more likely than white women to die complications during pregnancy and childbirth, including preeclampsia

- Nationally, it has been shown that 60% of maternal deaths can be avoided. **Continuous pregnancy support**, **symptom education and screening**, and **timely interventions** for high risk conditions have been shown to prevent complications and reduce maternal deaths

- **Condition Management** team has been awarded an FCC Telehealth grant to build a high-risk maternity program in 2022 and will start enrolling January' 22

Appendix

Early Engagement Data

Hypertension Management through Remote Patient Monitoring Program — Patient engagement and access to care improved

- **Sustained usage of devices** - 75% of patients are using their blood pressure machine daily for at least half of the month
- **Successful care coordination** - 75% of patients are engaging with their Condition Management health care team for at least 20 minutes per month
- **Minimal program disenrollment** - the program has a low disenrollment rate of 2% per month

- **Outpaced demand for enrollment** - on average, the program has enrolled 25% above the projected monthly enrollment target for 2021

Patient Journey

Patient Referral

Physician places a 'Referral to Condition Management' in Epic

After physician referral, the patient is aligned with a **patient coordinator, dietician** and **clinical pharmacist** who completes enrollment and consent

01

Program Enrollment Phase

Within 2 weeks, patients receive and are setup with their devices, their care team, receive training and scheduled for their first clinical visit with the clinical pharmacist

02

Clinical Management Phase

The Condition Management team facilitates care path changes with patients through collaboration with **referring physicians.**

Care team will also be notified on out-of-range notifications

03

Clinical Maintenance Phase

Once patients have reached individual clinical goals, patients **remains enrolled** with communication conducted by the care team on a **monthly basis**

04

Enrollment Criteria and Cost

HTN Enrollment Criteria

Patients with chronically uncontrolled hypertension (last 3 office visits >140/90)

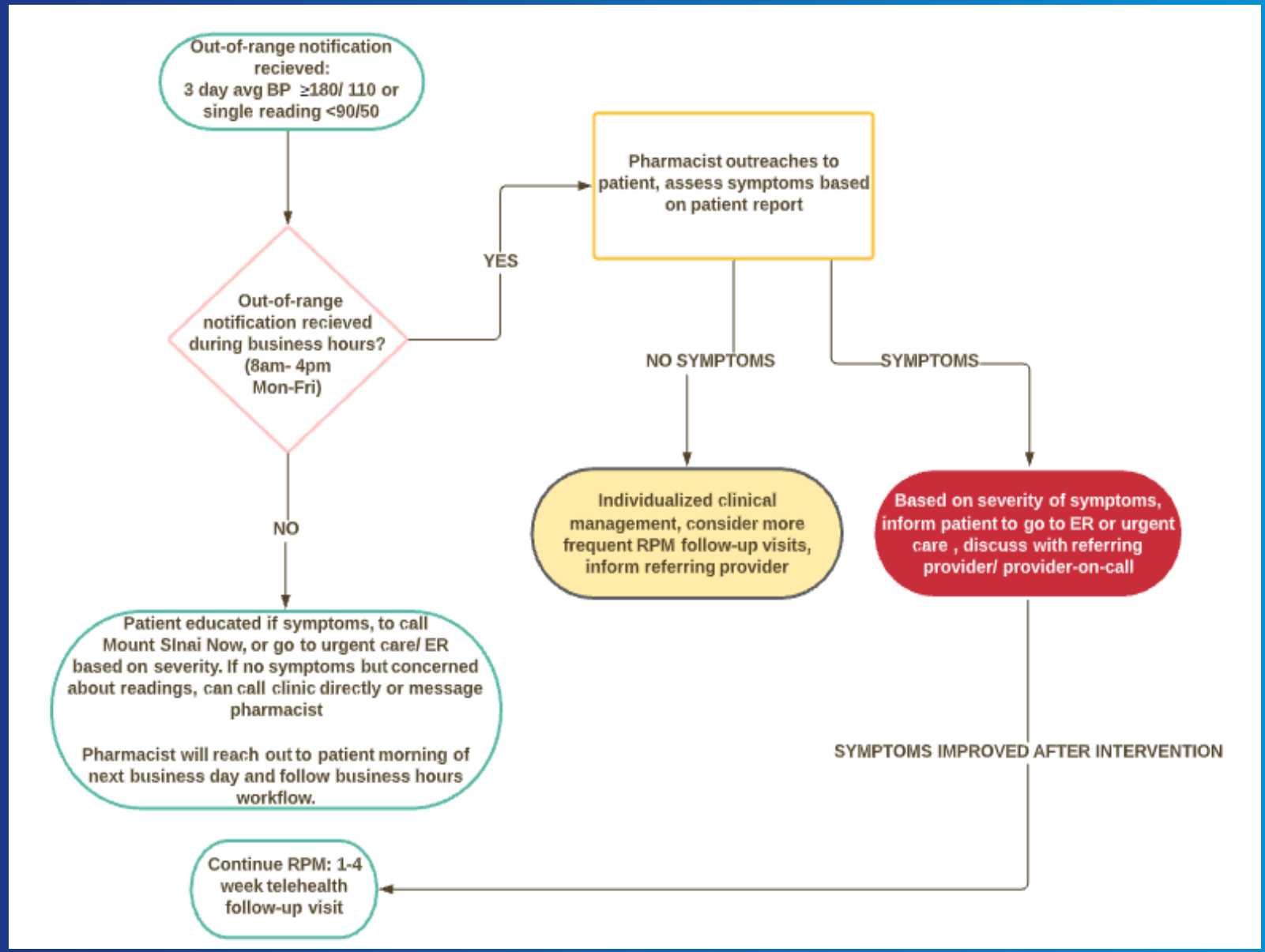
Cost Sharing for Services

Traditional Medicare: 80/20 coinsurance split

Medicare + Secondary: 20% coinsurance is typically offset by secondary

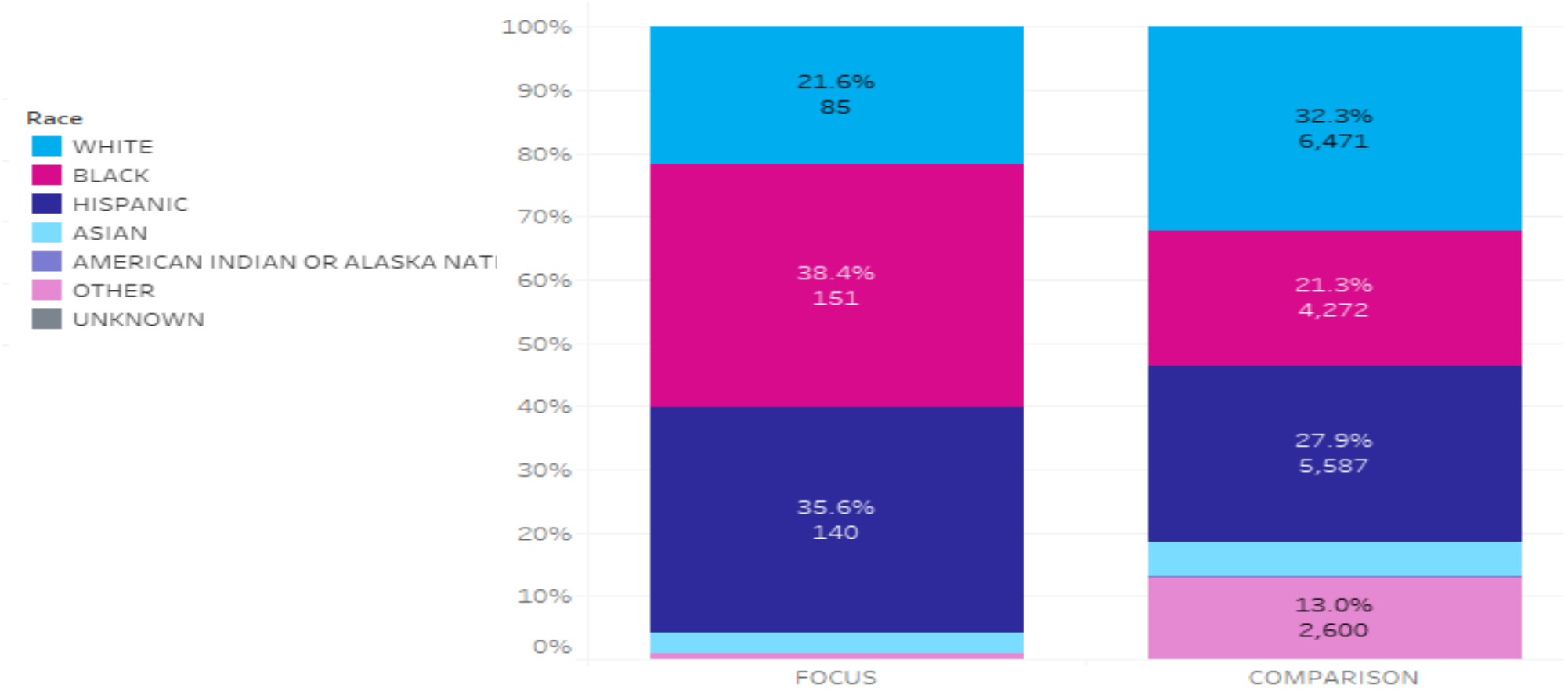
Healthfirst Medicaid, UMR service is also covered

Hypertension Out of Range Notifications



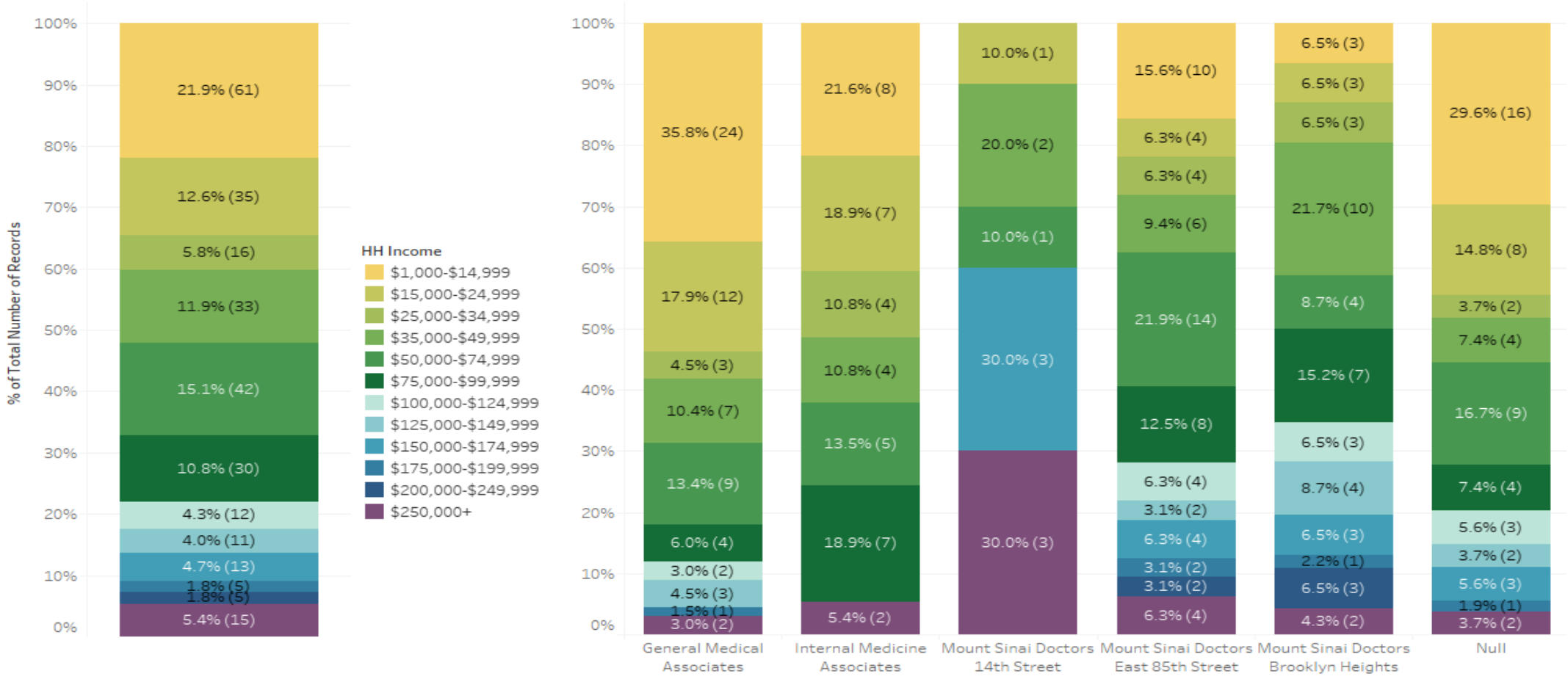
Race

More than half of the RPM patients are black and Hispanic.



Income

More than half of the RPM patients have a household income <$50K per year.

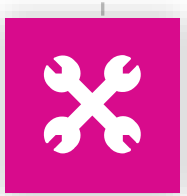


Physician Journey

- Physicians identifies patient as potential candidate
- Introduce briefly to patient, send ‘Referral to Condition Management – Remote Patient Monitoring ’ in Epic

- Patient outreach and enrollment visit completed within one week. If RPM not covered, or patient declines, physician informed
- If patient enrolls, pharmacist will route note to physicians, and request to sign device order, co-sign and attest note

- Device sent to patients home
- Patient receives call from vendor +/- patient navigator to ensure proper set-up



Management/Maintenance Phase:

- Bi-weekly- monthly visits with pharmacist +/- dietician
- Out-of range notification responses from pharmacist
- Each billable encounter will require co-signature from physician
- Patient will have at least one billable encounter per month
- Clinical pharmacist will route all management visit notes to physician

Case Studies

Discovery and resolution of medication errors	• An out of range alert notification for BP <90/50 was received for a 69F patient followed by cardiology and primary care provider • Pharmacist conducted a chart review - patient recently discharged from the hospital and was prescribed both valsartan 320mg and losartan 100mg every 12 hours. Patient reported taking both agents • Through collaboration with PCP and cardiology, the patient was advised to discontinue losartan and continue valsartan • She was scheduled for timely follow up to evaluate her BMP after duplicating ARB therapy
Discovery of an undiagnosed medical condition	• Team received an out of range notification for a hypotensive patient who is typically hypertensive • Pharmacist informed the provider, who brought the patient in for work-up and labs sooner than next scheduled visit • Work-up revealed that patient had anemia, provider referred patient to renal and hematology • Provider states that without the Condition Management program, he would not have been able to identify as quickly

Age

More than half of the RPM patients are >65.