Targeting Mobile Engagement Efforts

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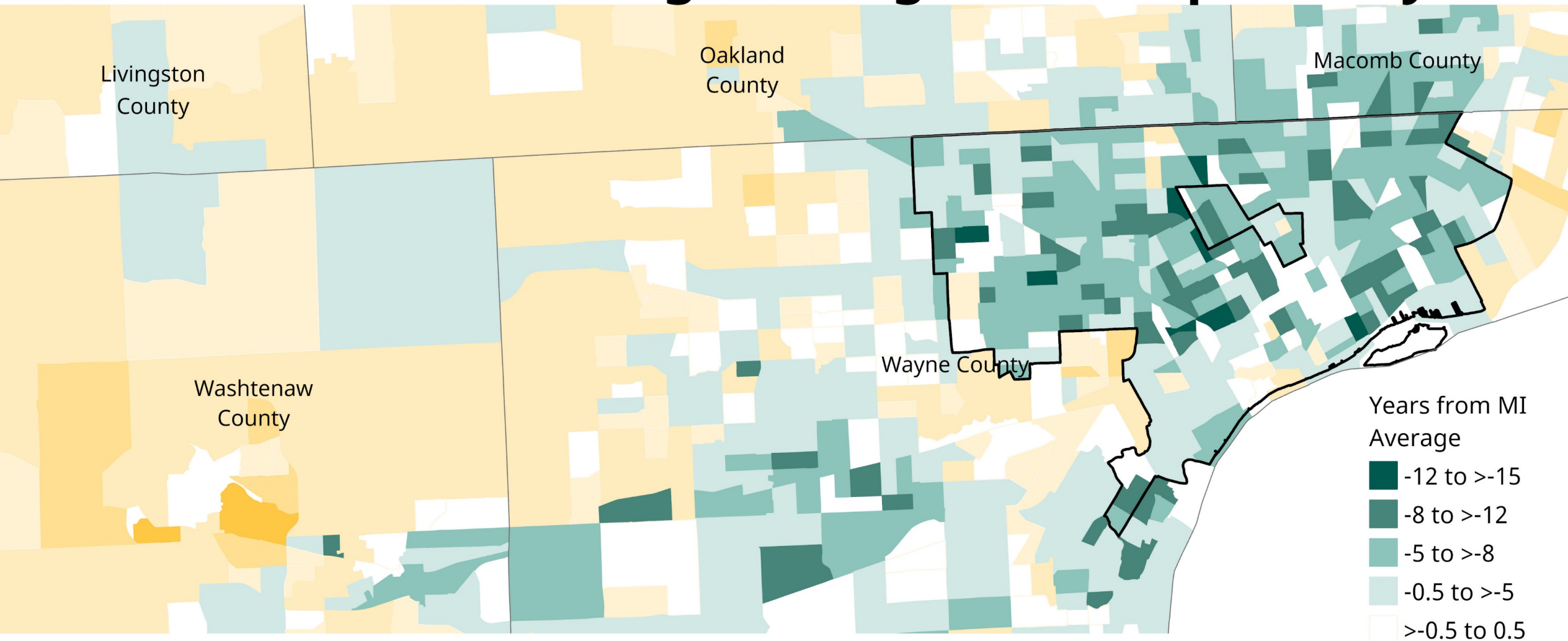
Chief Innovation Officer - Wayne Health

WAYNE STATE UNIVERSITY

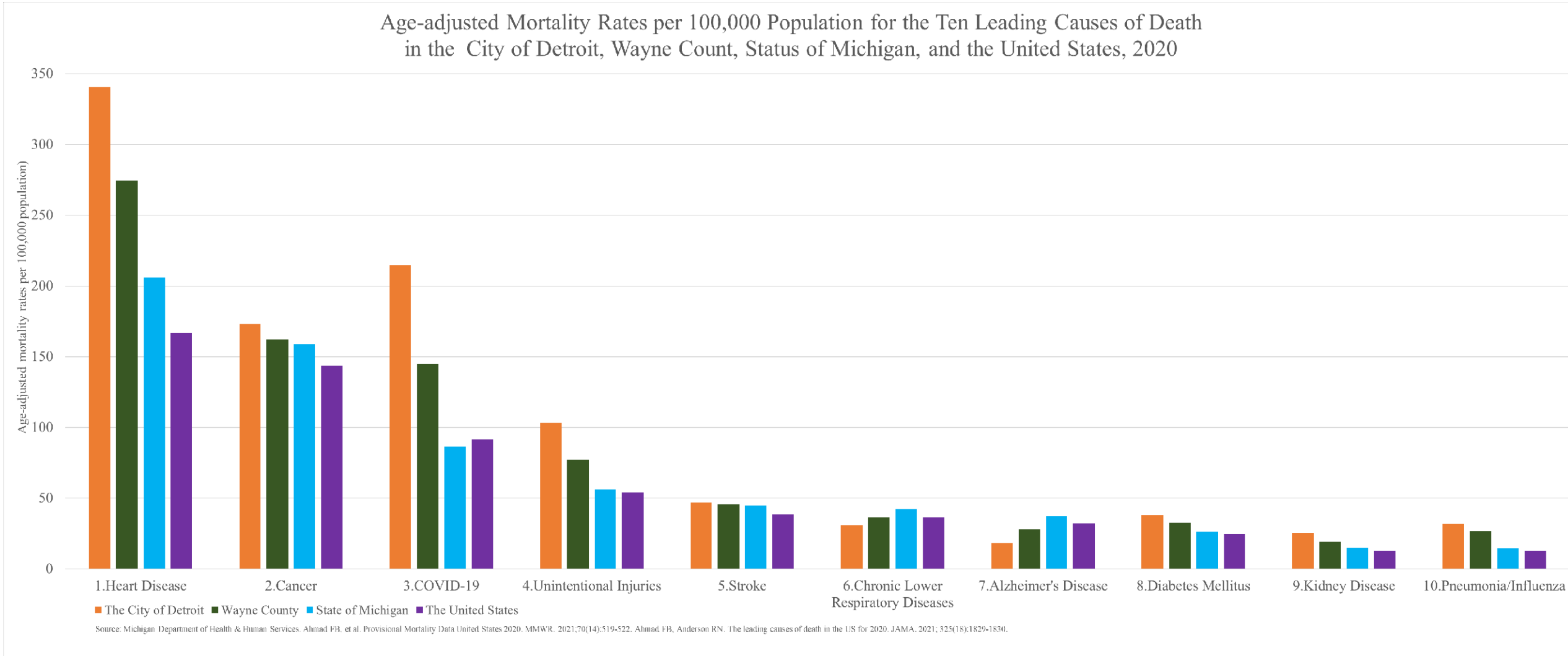
Years from Average Michigan Life Expectancy



PHOENIX

Average Michigan life expectancy is 77.7 years (at birth).

Data from National Center for Health Statistics. U.S. Small-Area Life Expectancy Estimates Project (USALEEP): Michigan [2010-2015]. Methodology by Escobedo et al., 2018.


Age-adjusted Mortality Rates per 100,000 Population for the Ten Leading Causes of Death in the City of Detroit, Wayne Count, Status of Michigan, and the United States, 2020
Age-adjusted mortality rates per 100,000 population)
350
300
250
200
150
100
50
0
1.Heart Disease
2.Cancer
3.COVID-19
4.Unintentional Injuries
5.Stroke
6.Chronic Lower Respiratory Diseases
7.Alzheimer's Disease
8.Diabetes Mellitus
9.Kidney Disease
10.Pneumonia/Influenza
The City of Detroit
Wayne County
State of Michigan
The United States
Source: Michigan Department of Health & Human Services. Ahmad FB, et al. Provisional Mortality Data United States 2020. MMWR. 2021;70(14):519-522. Ahmad FB, Anderson RN. The leading causes of death in the US for 2020. JAMA. 2021; 325(18):1829-1830.

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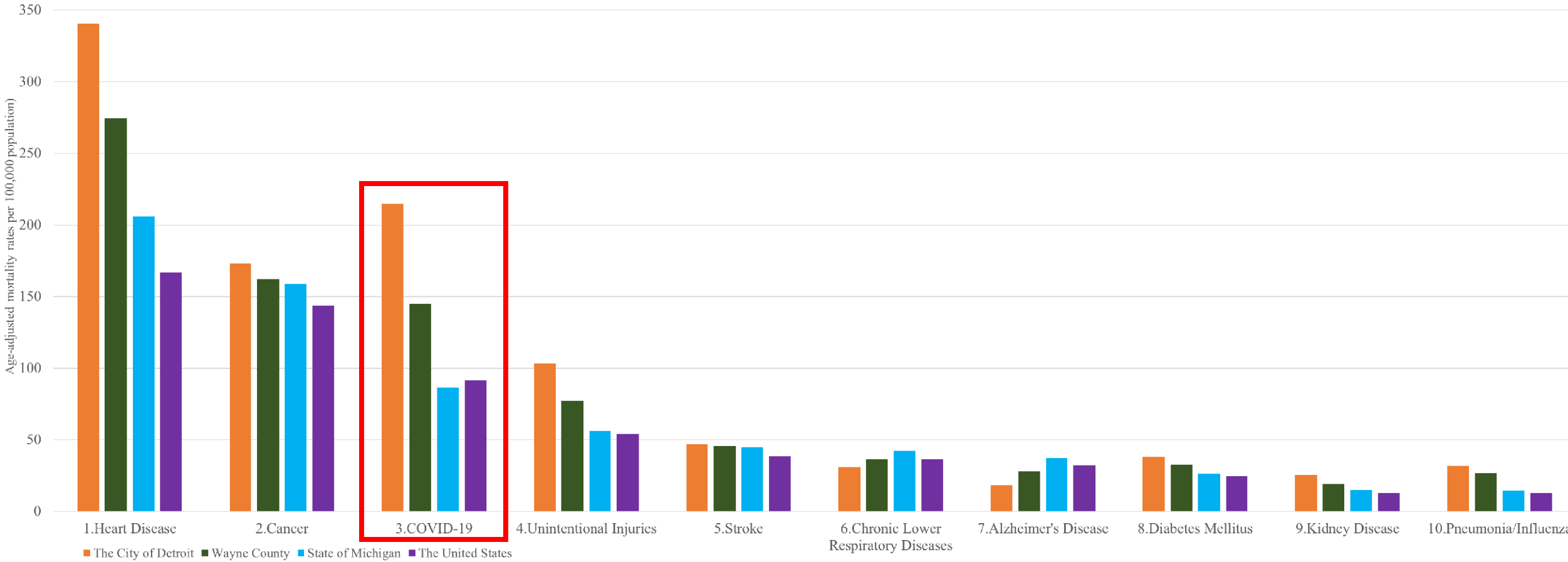

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Wayne Health Mobile Unit

 # Patient Visits
75,288

 # Unique Patients
52,471

 # Covid Tests
48,667

 # Negative Results
44,468

 # Positive Results
4,199

 # Covid Vaccines
14,709

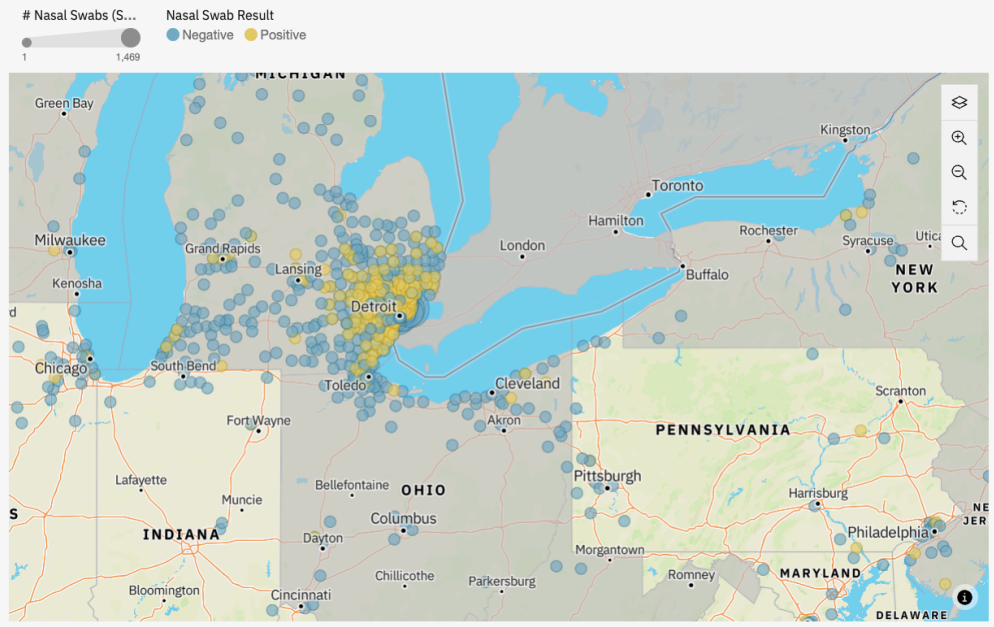
 # First Dose
6,966

 # Second Dose
5,340

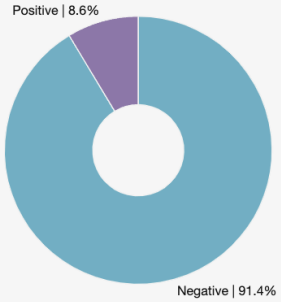
 # Third Dose/Booster
2,297

Patients Seen by Month

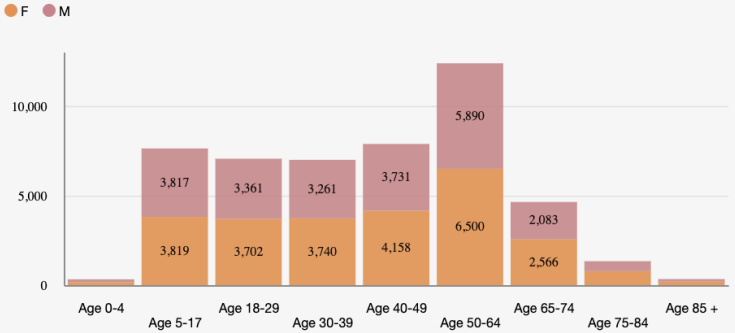
Covid Tests by Zip Code



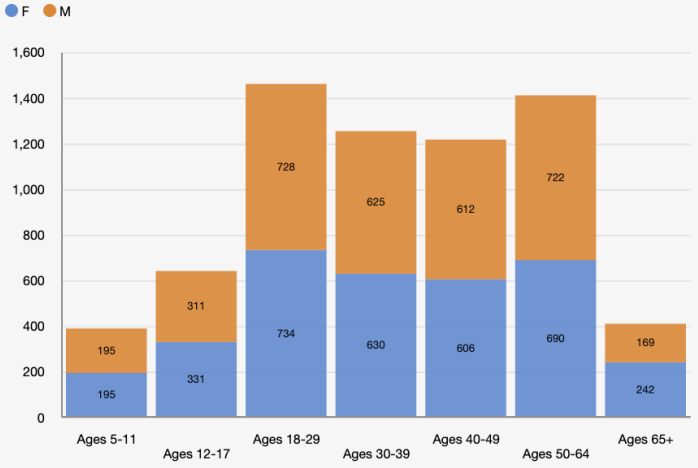
Covid Test Results %



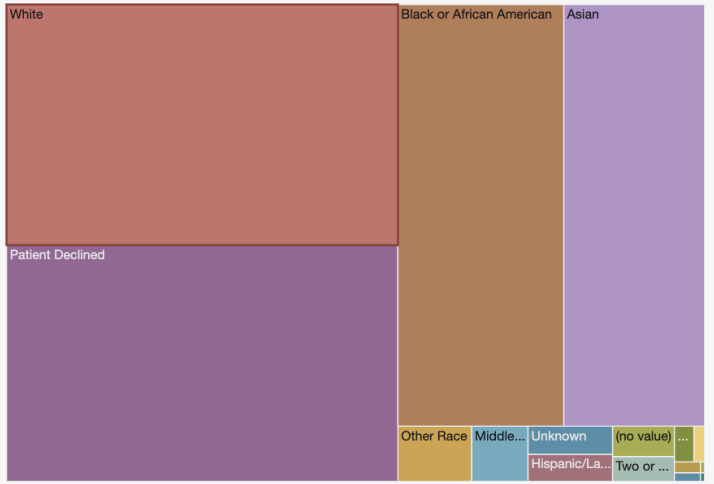
Covid Tests by Age and Sex



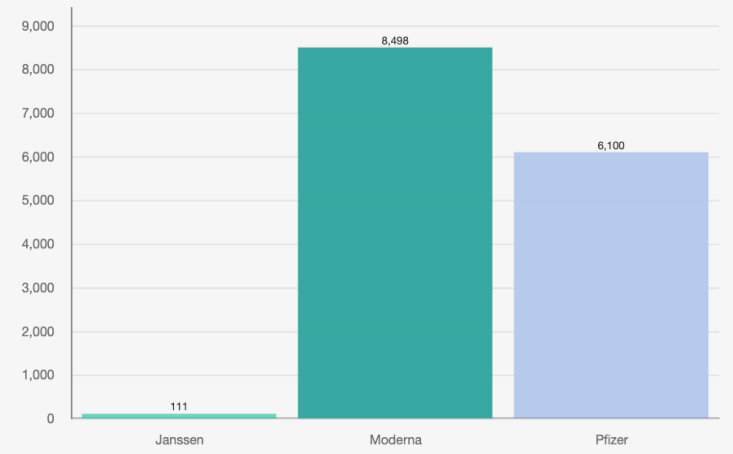
Covid Vaccines by Age and Sex



Covid Vaccines by Race



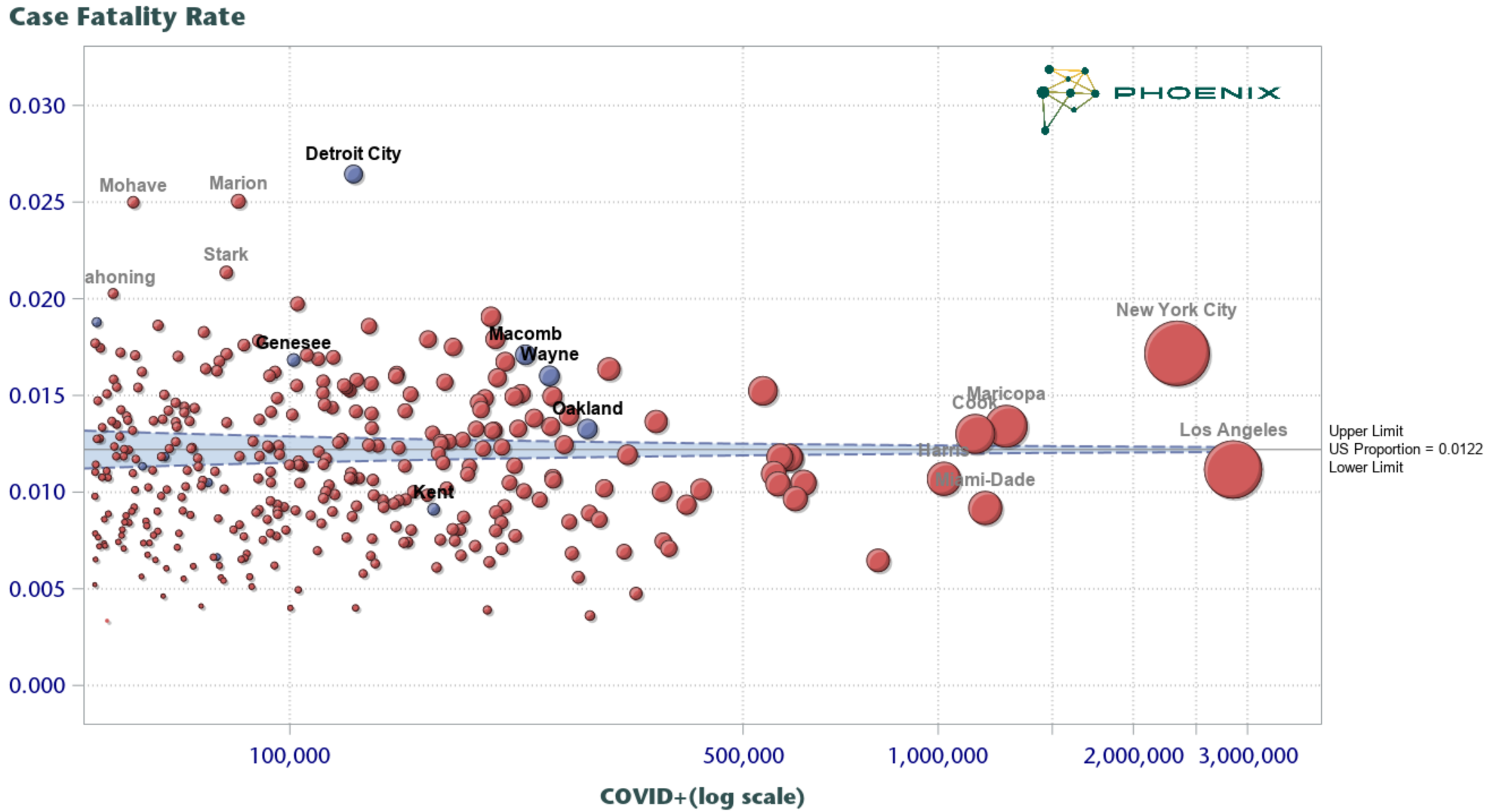
Covid Vaccines by Manufacturer



COVID Case Fatility Rate in Detroit MI, New York City and US Counties that reported +50,000 positive tests as of 17APR2022

Each bubble is a county or city; the larger the bubble the more deaths

Detroit and Michigan's heavily affected counties are outlined in black

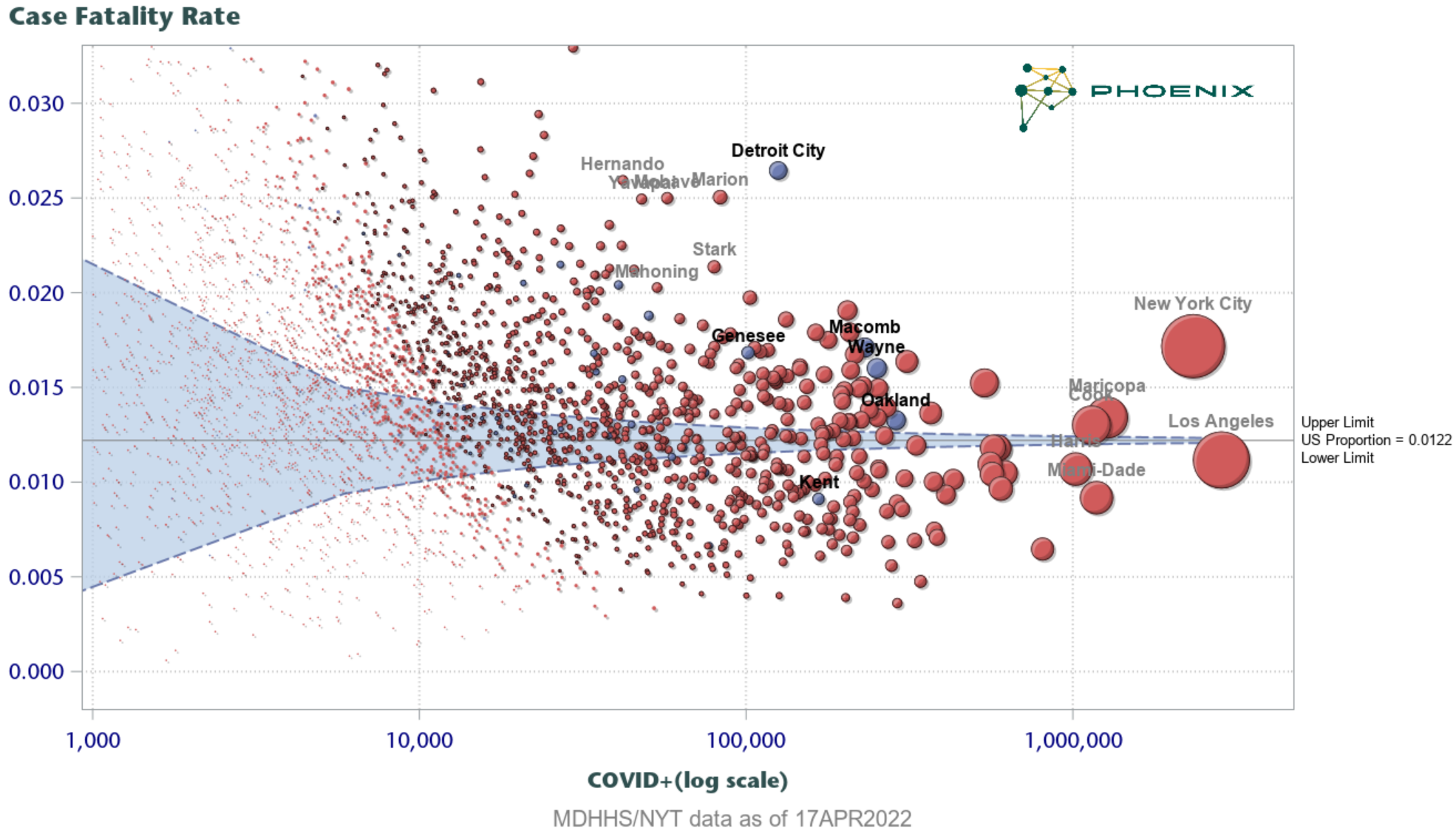


MDHHS/NYT data as of 17APR2022

COVID Case Fatility Rate in Detroit MI, New York City and US Counties that reported +1,000 positive tests as of 17APR2022

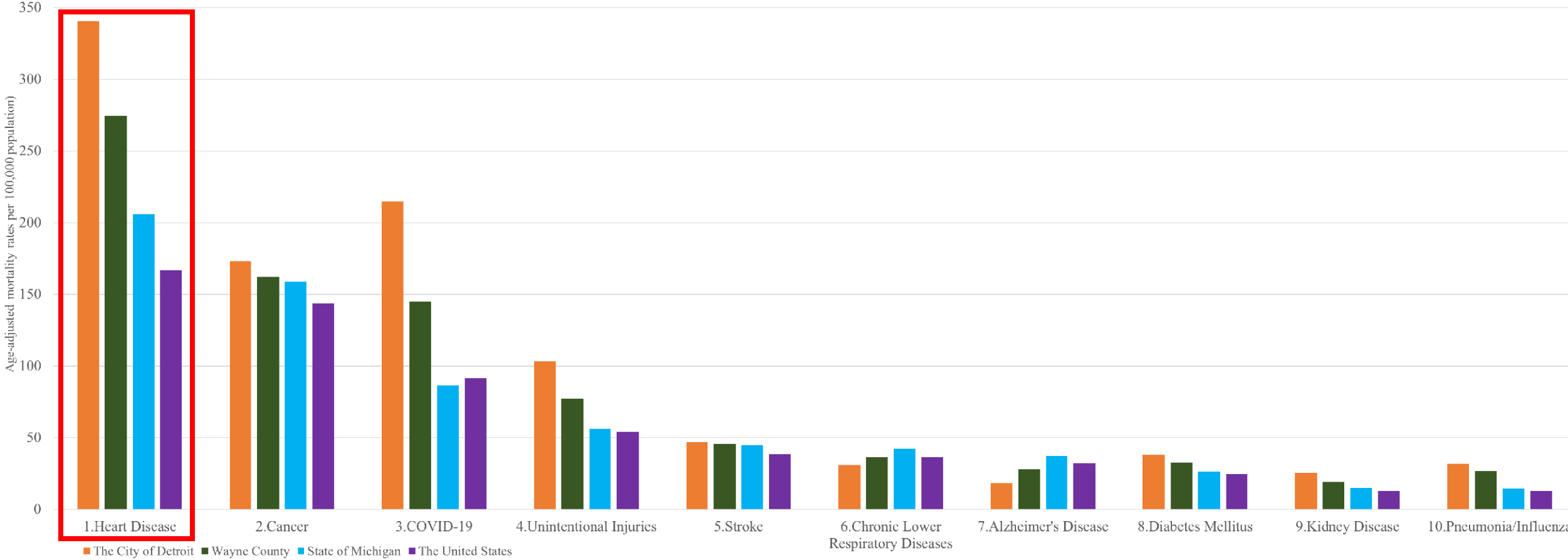
Each bubble is a county or city; the larger the bubble the more deaths

Detroit and Michigan's heavily affected counties are outlined in black



MDHHS/NYT data as of 17APR2022

Age-adjusted Mortality Rates per 100,000 Population for the Ten Leading Causes of Death in the City of Detroit, Wayne Count, Status of Michigan, and the United States, 2020



Source: Michigan Department of Health & Human Services. Ahmad FB, et al. Provisional Mortality Data United States 2020. MMWR. 2021;70(14):519-522. Ahmad FB, Anderson RN. The leading causes of death in the US for 2020. JAMA. 2021; 325(18):1829-1830.

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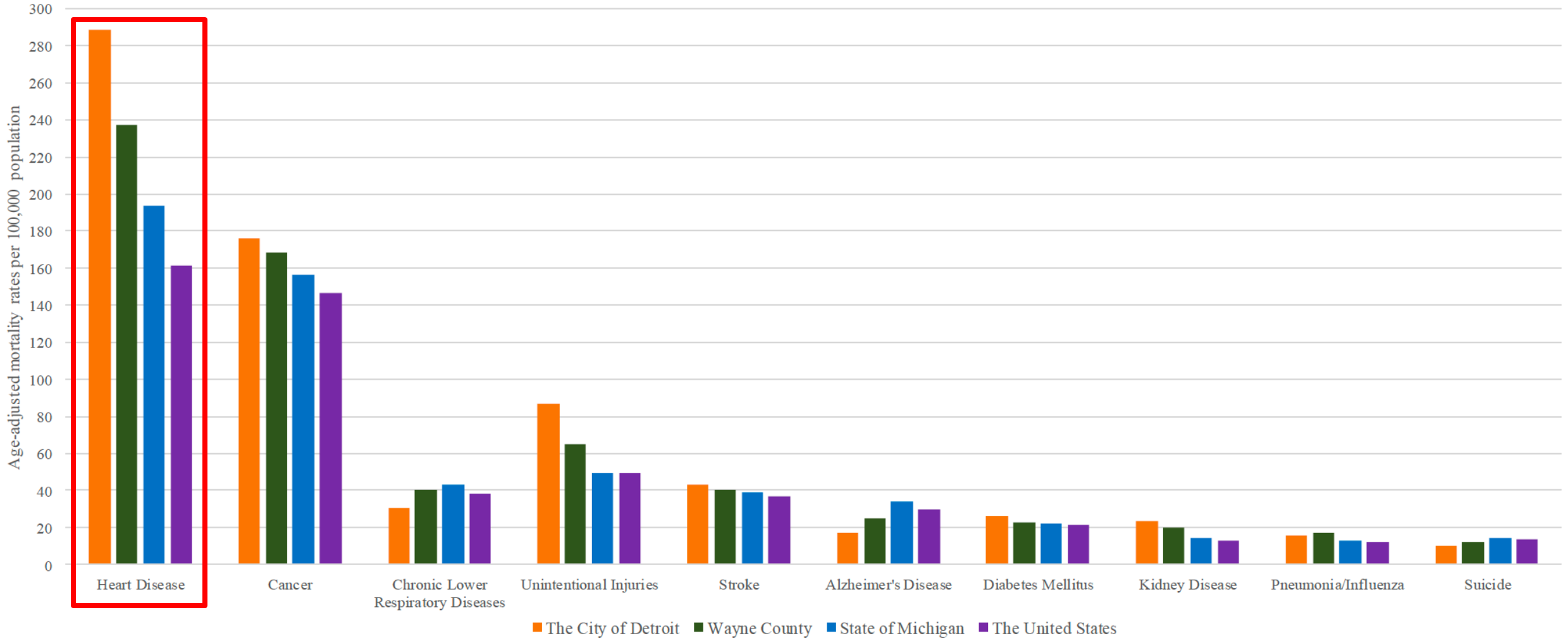
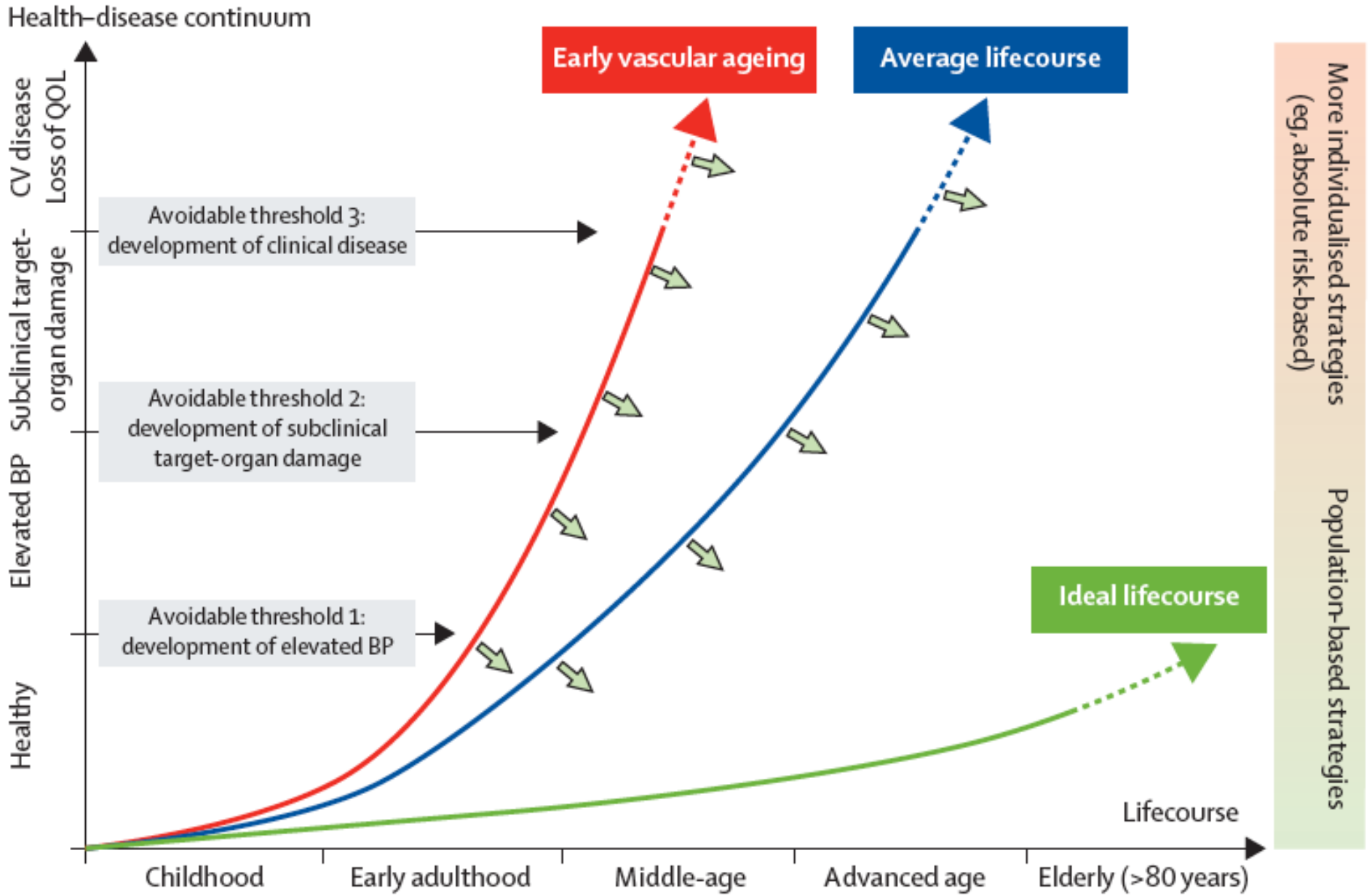


Source: 2019 Geocoded Michigan Death Certificate Registry. Division for Vital Records & Health Statistics, Michigan Department of Health & Human Services.
National Center for Health Statistics.



Olsen et al. Lancet 2016;388:2665-2712.

PLOS ONE

Funding: Funding was supplied by donors and non-profit organizations including United Way for Southeastern Michigan, the Community Foundation of Southeast Michigan/Detroit Medical Center Foundation, the Ralph C. Wilson Foundation, Community Organized Relief Effort (CORE), DTE Energy Foundation, Blue Cross Blue Shield of Michigan, and the Cielo Foundation. Michigan Department of Health and Human Services (MDHHS) also collaborated and contributed funding to support further growth and extension of services. A CDC funded program (1817) with the MDHHS Heart Disease and Stroke Prevention Unit allowed for cardiometabolic risk factor screening. In addition, funding for the PHOENIX program was provided by the Michigan Health Endowment Fund and Delta Dental Michigan.

RESEARCH ARTICLE

From pandemic response to portable population health: A formative evaluation of the Detroit mobile health unit program

Phillip Levy[1], Erin McGlynn[1]*, Alex B. Hill[1], Liying Zhang[2], Steven J. Korzeniewski[2], Bethany Foster[1], Jasmine Criswell[3], Caitlin O'Brien[3], Katee Dawood[3], Lauren Baird[3], Charles J. Shanley[4]

1 Department of Emergency Medicine, Wayne State University School of Medicine, Detroit, Michigan, United States of America, **2** Department of Family Medicine and Public Health Sciences, Wayne State University School of Medicine, Detroit, Michigan, United States of America, **3** Wayne Health, Wayne State University, Detroit, Michigan, United States of America, **4** Department of Surgery, Wayne State University School of Medicine, Detroit, Michigan, United States of America

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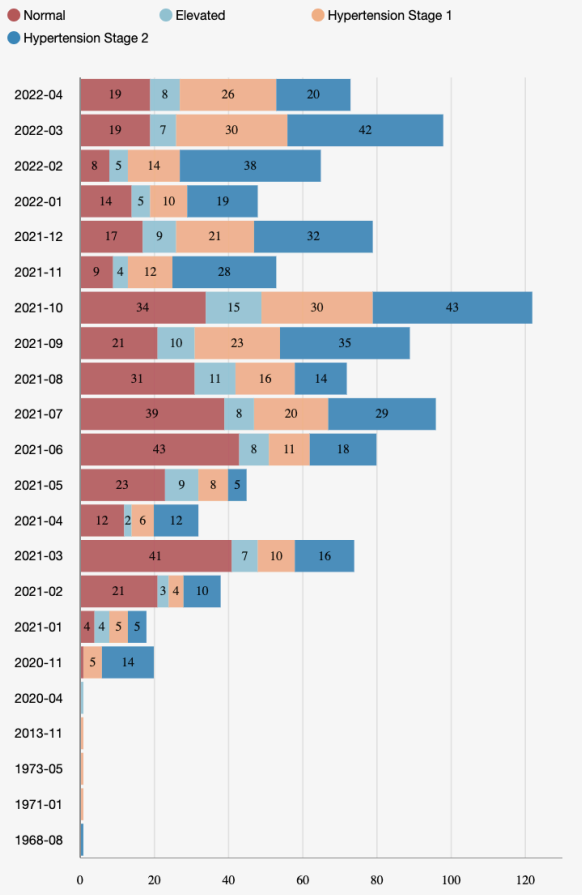
Wayne Health Mobile Unit

# BP Screenings	# Screening Labs	# Referred to PCP	# Referred to Specialist
1,107	4,527	20	5

Blood Pressures Measured



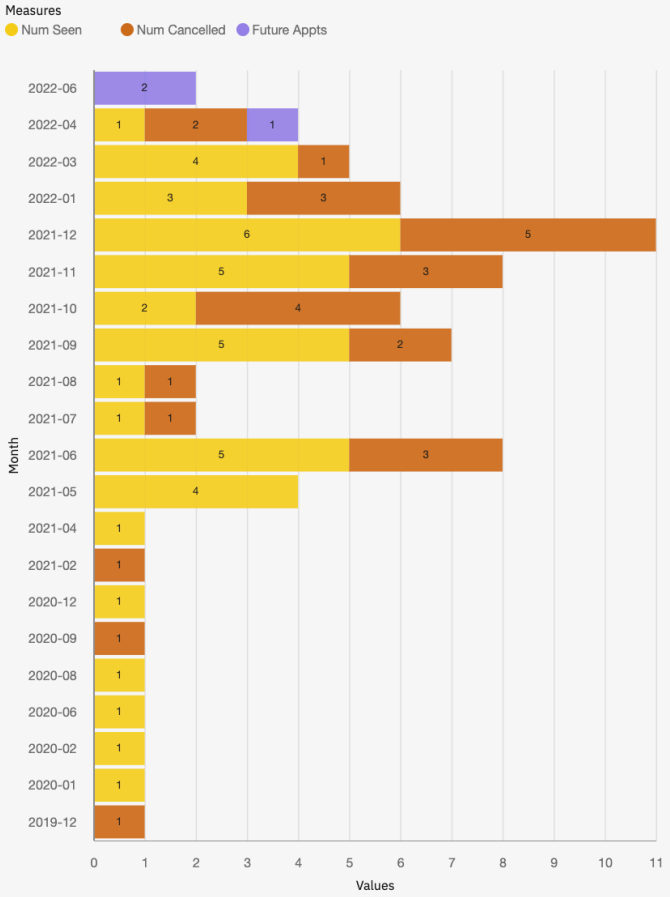
Screening Labs Ordered

Num_Labs_Ordered	2021-10	2021-09	2021-08	2021-07	2021-06	2021-05	Summary
BMP, SERUM OR PLASMA	0	0	0	0	0	13	**13**
CBC W/ AUTO DIFF	0	1	0	1	22	82	**106**
CMP, SERUM OR PLASMA	128	239	271	157	38	71	**1,280**
GLUCOSE, SERUM OR PLASMA	0	0	1	0	2	84	**87**
HBA1C (HEMOGLOBIN A1C), BLOOD	128	240	273	157	38	84	**1,296**
HEMOGLOBIN (HB), BLOOD	1	39	24	3	0	7	**98**
LEAD, BLOOD	40	40	42	3	24	68	**352**
LIPID PANEL, SERUM	128	239	272	155	0	18	**1,188**
UNLISTED LAB	0	0	0	2	38	66	**107**
Summary	**425**	**798**	**883**	**478**	**162**	**493**	**4,527**

Lab Results

	2021-06		2021-05			Summary		
	bnormal	% Abnormal	Num Results	Num Abnormal	% Abnormal	Num Results	Num Abnormal	% Abnormal
CHOLESTEROL, TOTAL	0	0%	69	3	4%	**1,225**	**424**	**35%**
CREATININE	1	5%	69	6	9%	**1,205**	**97**	**8%**
EGFR AFRICAN AMERICAN	10	50%	69	35	51%	**1,193**	**645**	**54%**
EGFR NON-AFR. AMERICAN	5	25%	69	21	30%	**1,193**	**376**	**32%**
HEMOGLOBIN A1C	1	5%	70	7	10%	**1,228**	**127**	**10%**
Summary	**17**	**17%**	**346**	**72**	**21%**	**6,044**	**1,669**	**28%**

Referred to PCP, Appointment Statuses



Hypertension

RESEARCH LETTER

Utilizing Mobile Health Units for Mass Hypertension Screening in Socially Vulnerable Communities Across Detroit

Robert D. Brook, Katee Dawood, Bethany Foster, Randi M. Foust, Catherine Gaughan, Paul Kurian, Brian Reed, Andrea L. Jones, Barbara Vernon, Phillip D. Levy

Nearly half of all adults in the United States have hypertension, defined as a blood pressure (BP) ≥130/80 mm Hg. However, both the prevalence (56%) and control rates (18%) are worse in Black patients.[1] Numerous social determinants of health in socially vulnerable populations further exacerbate these disparities while reducing hypertension awareness and access to health care.[2] Few places exemplify this crisis like the city of Detroit (78% Black race) where hypertension rates are the highest in Michigan (https://www.cdc.gov/places) and all census tracks are in health professional shortage areas (https://data.hrsa.gov/tools/shortage-area/). As such, the public health importance of large-scale screening efforts to identify the enormous number of individuals with hypertension cannot be overstated.[3] We here describe the first-year results using our novel Wayne Health Mobile Unit program developed in collaboration with Wayne State University to address health disparities in Detroit.[4]

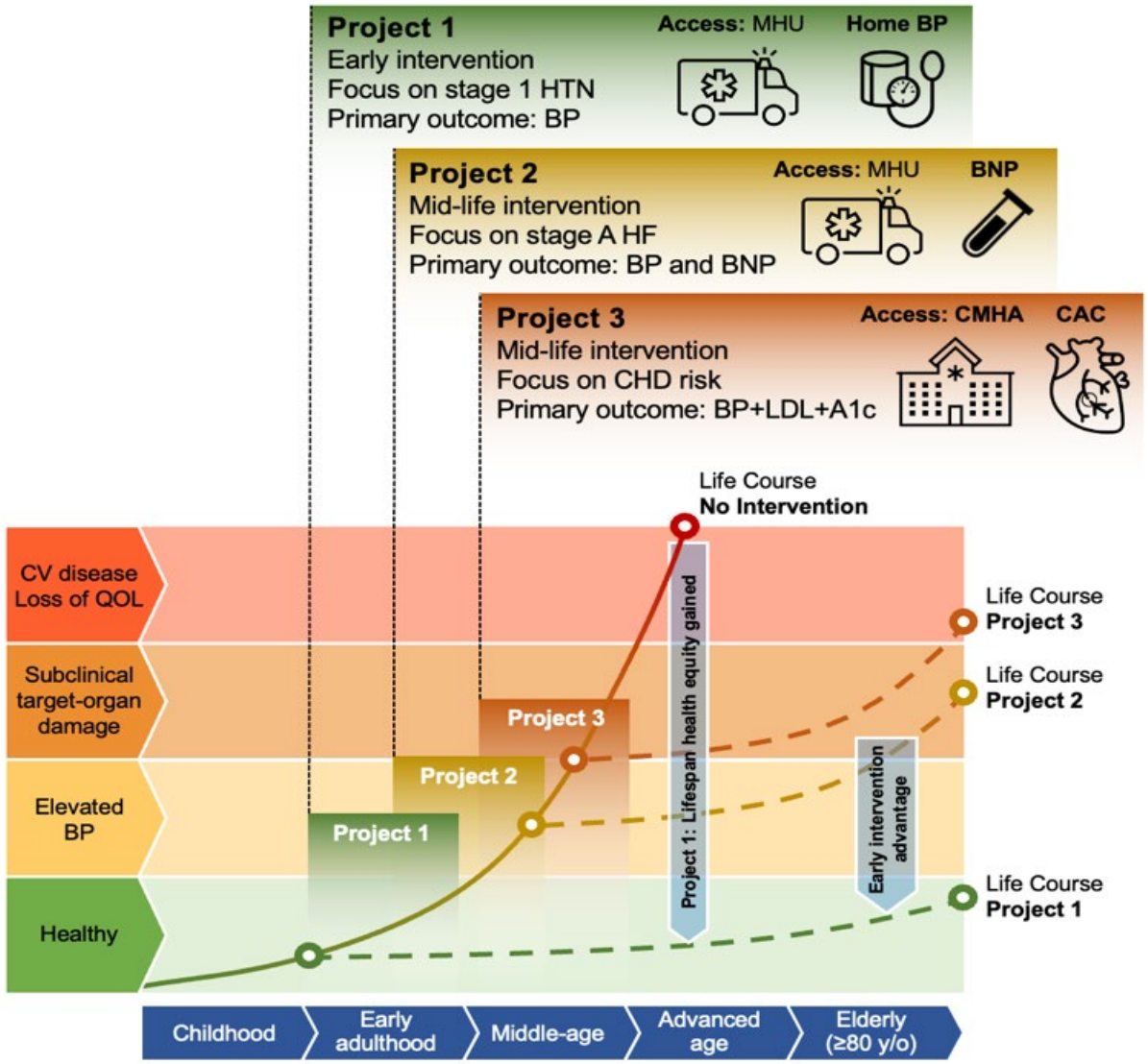
Given the large population serviced (while also ensuring resiliency of the program during cold weather and COVID restrictions), we developed a high-throughput method to offer screening for high BP (defined as ≥120/80 mm Hg) beginning in November 2020. Those driving to a site (≈90%) rested inside their parked car for ≥5 minutes. BP was then measured using an Omron 907XL monitor following a guideline-consistent protocol—up to an average of triplicate upper arm readings (1-minute intervals) using a correct cuff size with the arm supported at heart level (door armrest) and feet resting on the car floor. A minority (<10%) of walk-up patients had seated BP measured in MHU canopy rooms. As privacy was limited, BP measurements were attended and cuffs were placed over long-sleeves when relevant.

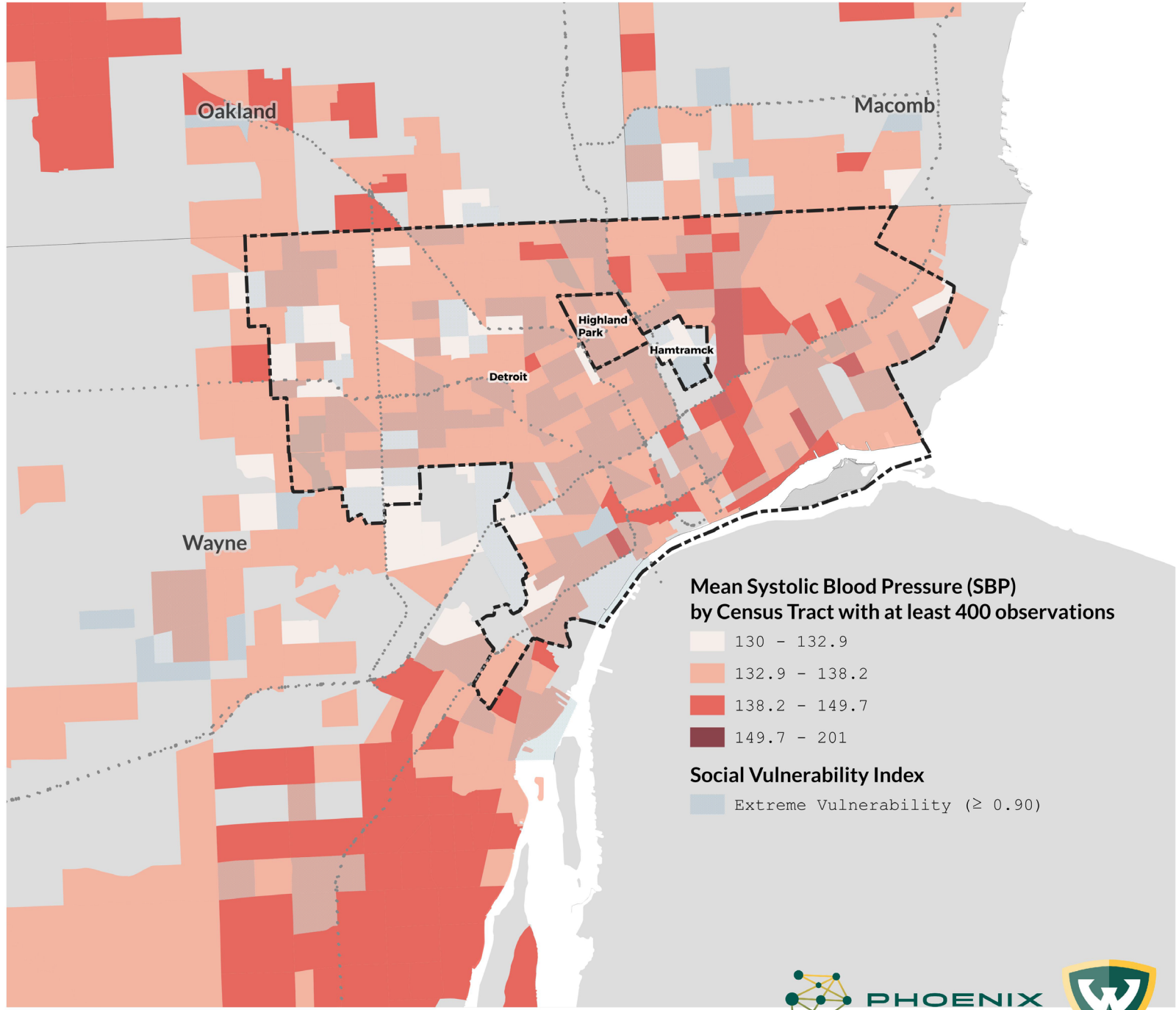
All patients are provided follow-up care in the Wayne Health system per individual needs/wishes. Health information, including prior hypertension status, is collected but not currently available for the entire cohort. Individuals with a screening systolic BP ≥130 mm Hg requiring primary care or social services were invited to enroll into an associated, CDC-supported quality improvement program (Bring-it-Down) capturing health information.

Categories	**Number (%)**	**BP*** (mm Hg)
All patients	3,039	126.9 ± 23.1 / 76.8 ± 14.7
Normal BP Systolic BP <120 and diastolic BP <80 mm Hg	1136 (37%)	105.5 ± 9.28 / 65.0 ± 8.34
High BP Categories**		
Elevated BP Systolic BP 120-129 and diastolic BP <80 mm Hg	306 (10%)	124.2 ± 2.8 / 70.1 ± 6.44
Hypertension categories*** Systolic BP ≥130 and/or diastolic BP ≥80 mm Hg	1597 (53%)	142.7 ± 19.39 / 86.4 ± 12.43
Stage I Systolic BP 130-139 and/or diastolic BP 80-89 mm Hg	629 (21%)	127.7 ± 8.73 / 80.3 ± 6.84
Stage II Systolic BP ≥140 and/or diastolic BP ≥90 mm Hg	968 (32%)	152.4 ± 18.15 / 90.4 ± 13.6

ACHIEVE GREATER

Addressing Cardiometabolic Health Inequities by Early PreVEntion in the GREAT LakEs Region





SOURCE: Emergency Department Surveillance data from HFHS and DMC (n=979,965); CDC Social Vulnerability Index (SVI), 2018

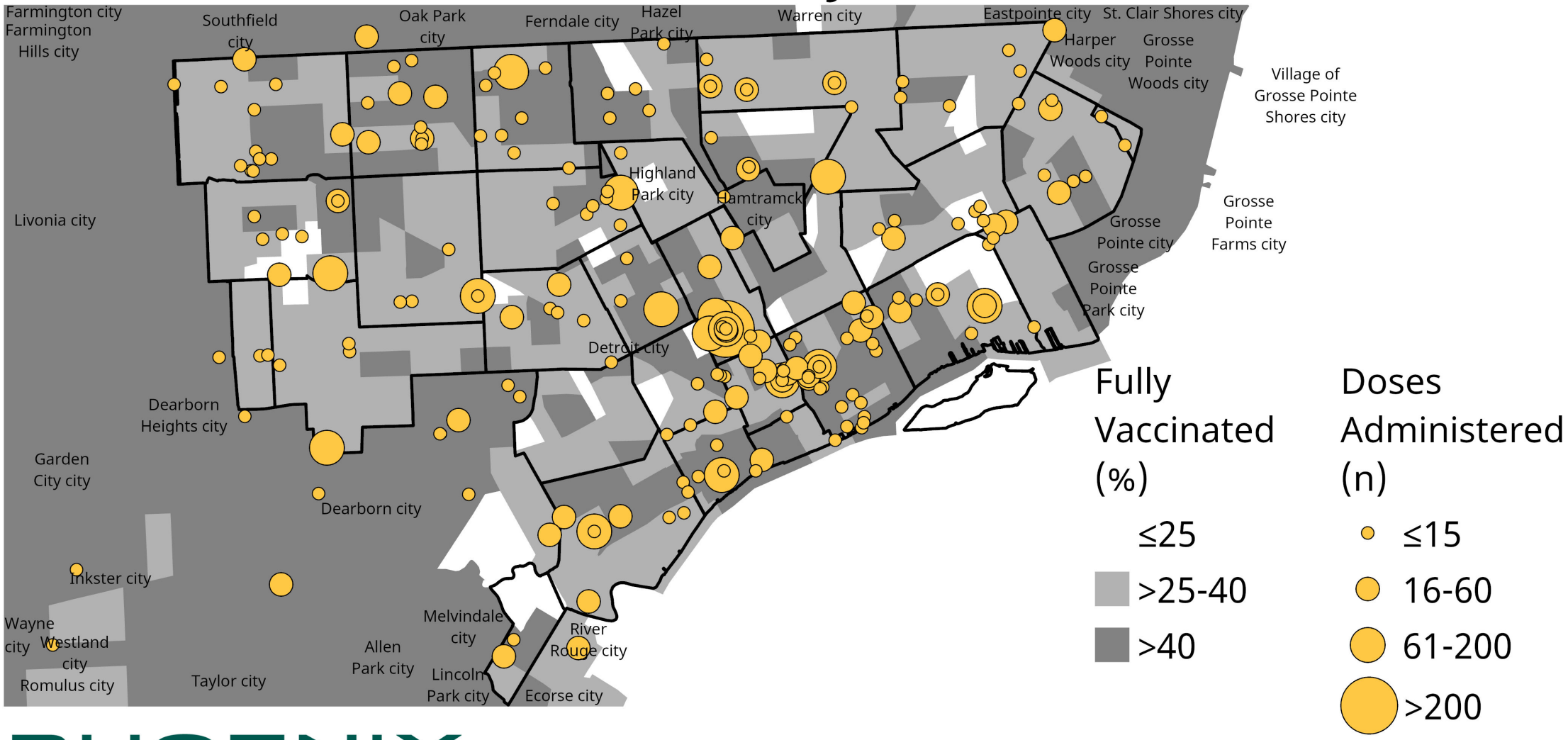
PHOENIX

HEALTH

Community-informed strategies improved Detroit's COVID response

By NAIMA January 27, 2022

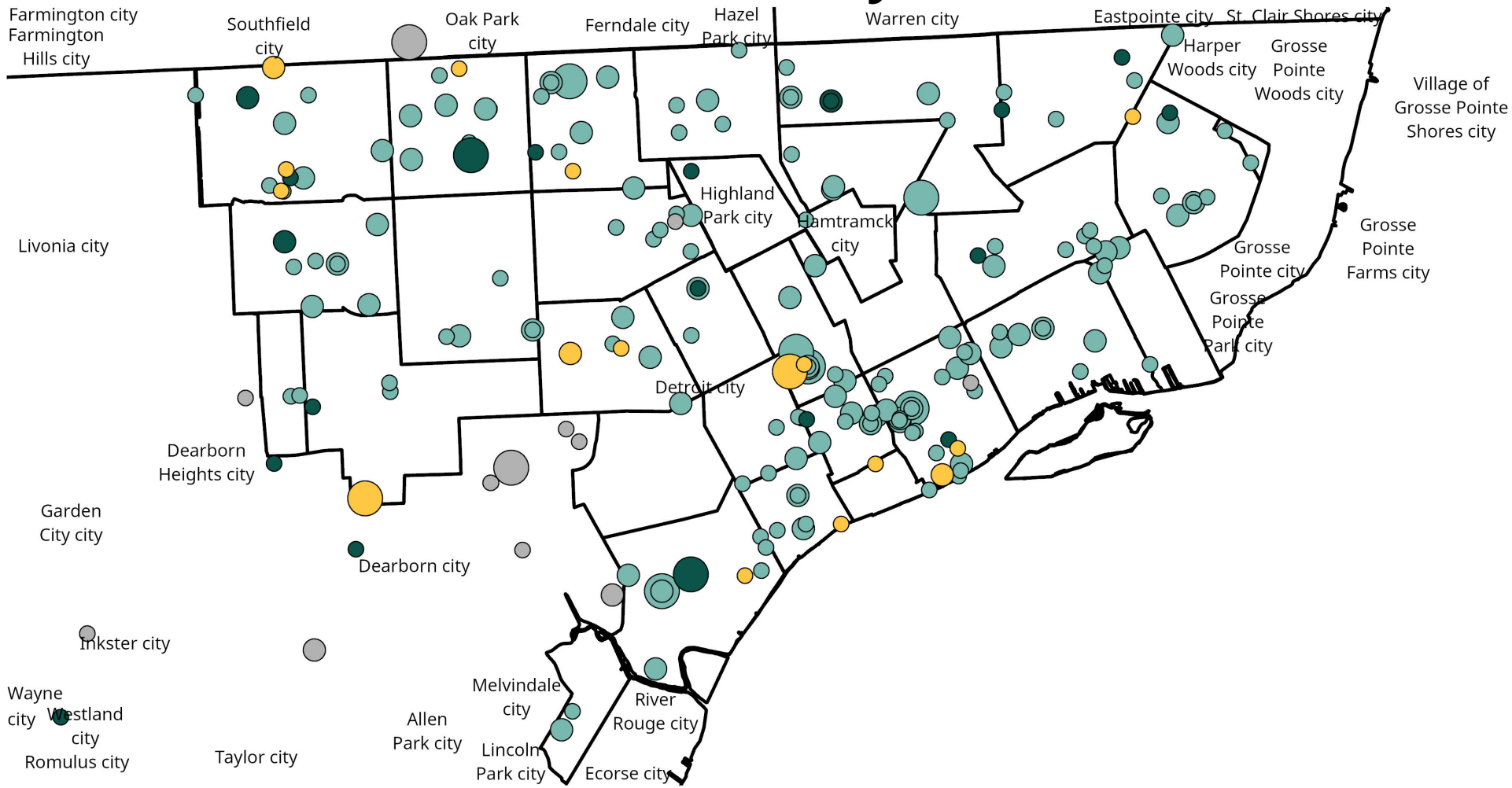
MMHC COVID-19 Vaccine Doses Administered by Site



PHOENIX

Note: Medical Mobile Health Corps (MMHC) data complete through April 4, 2022 (4,862 total doses).MI Lighthouse vaccine coverage based on percent fully vaccinated for COVID-19 as of March 23, 2022. Population denominator based on all persons, including those not eligible for vaccination.

MMHC COVID-19 Vaccine Doses Administered by Partner



ACCESS
- ≤10
- 11-20
- >20

D Group
- ≤10
- 11-15
- >15

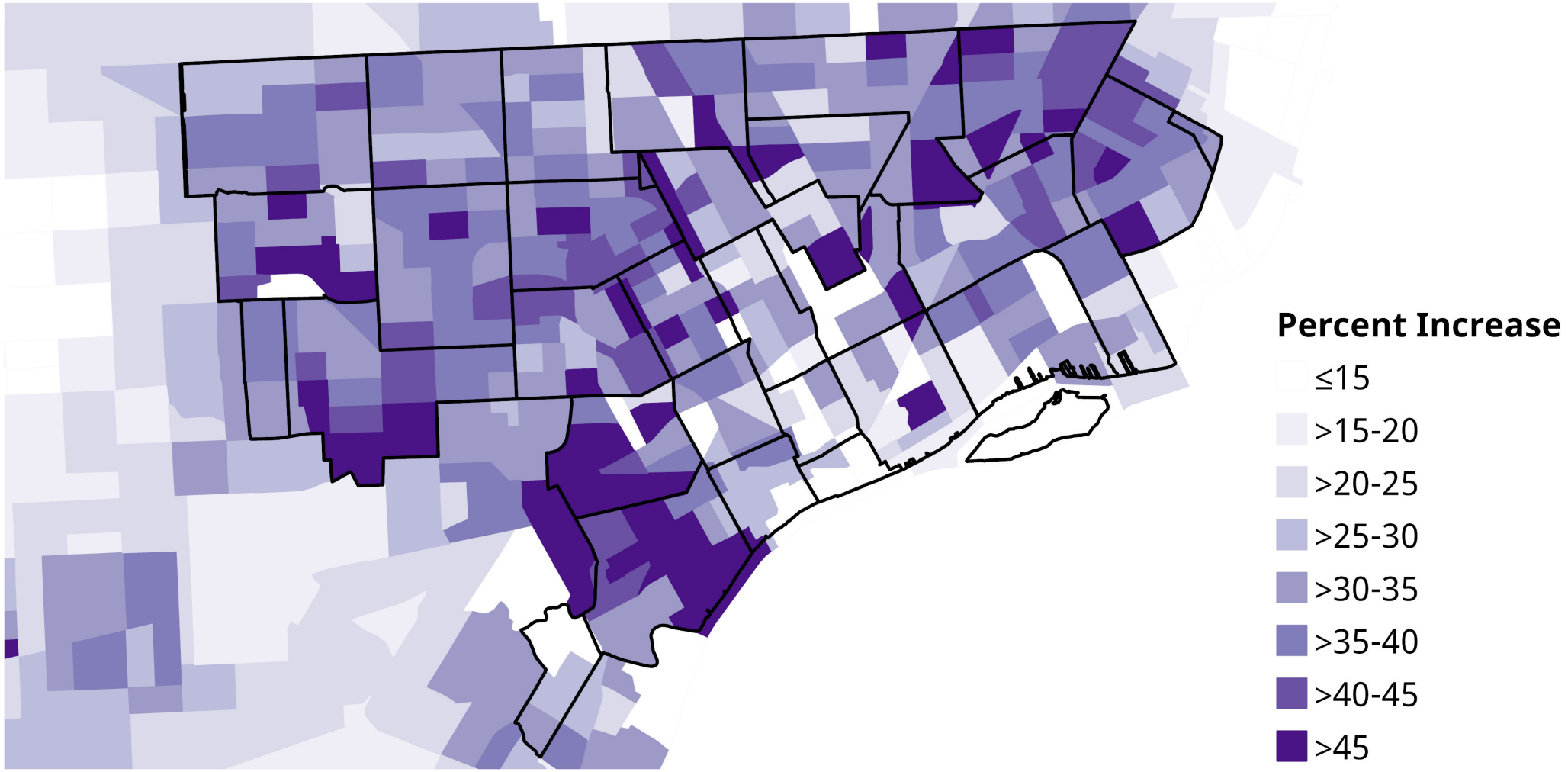
HFHS
- ≤10
- 11-50
- >50

Wayne Health
- ≤10
- 11-100
- >100

PHOENIX

Note: Medical Mobile Health Corps (MMHC) data complete through April 4, 2022 (4,862 total doses).MI Lighthouse vaccine coverage based on percent fully vaccinated for COVID-19 as of March 23, 2022. Population denominator based on all persons, including those not eligible for vaccination.

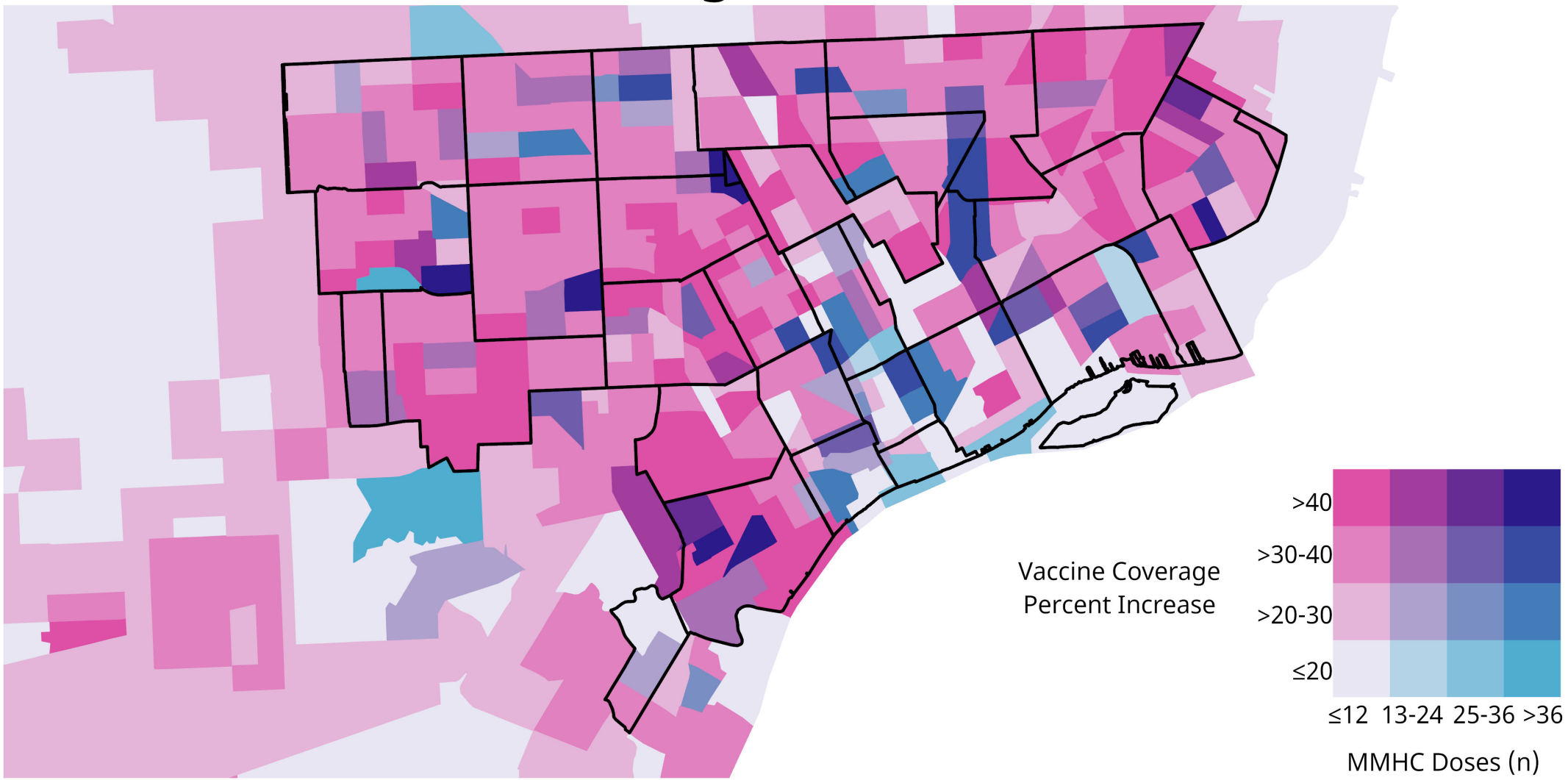
Percent Increase in COVID-19 Vaccine Coverage
March 23, 2022



PHOENIX

Note: Data from MI Lighthouse complete through March 23, 2022. Percent change based on population fully vaccinated for COVID-19 from August 24, 2021 - March 23, 2022.

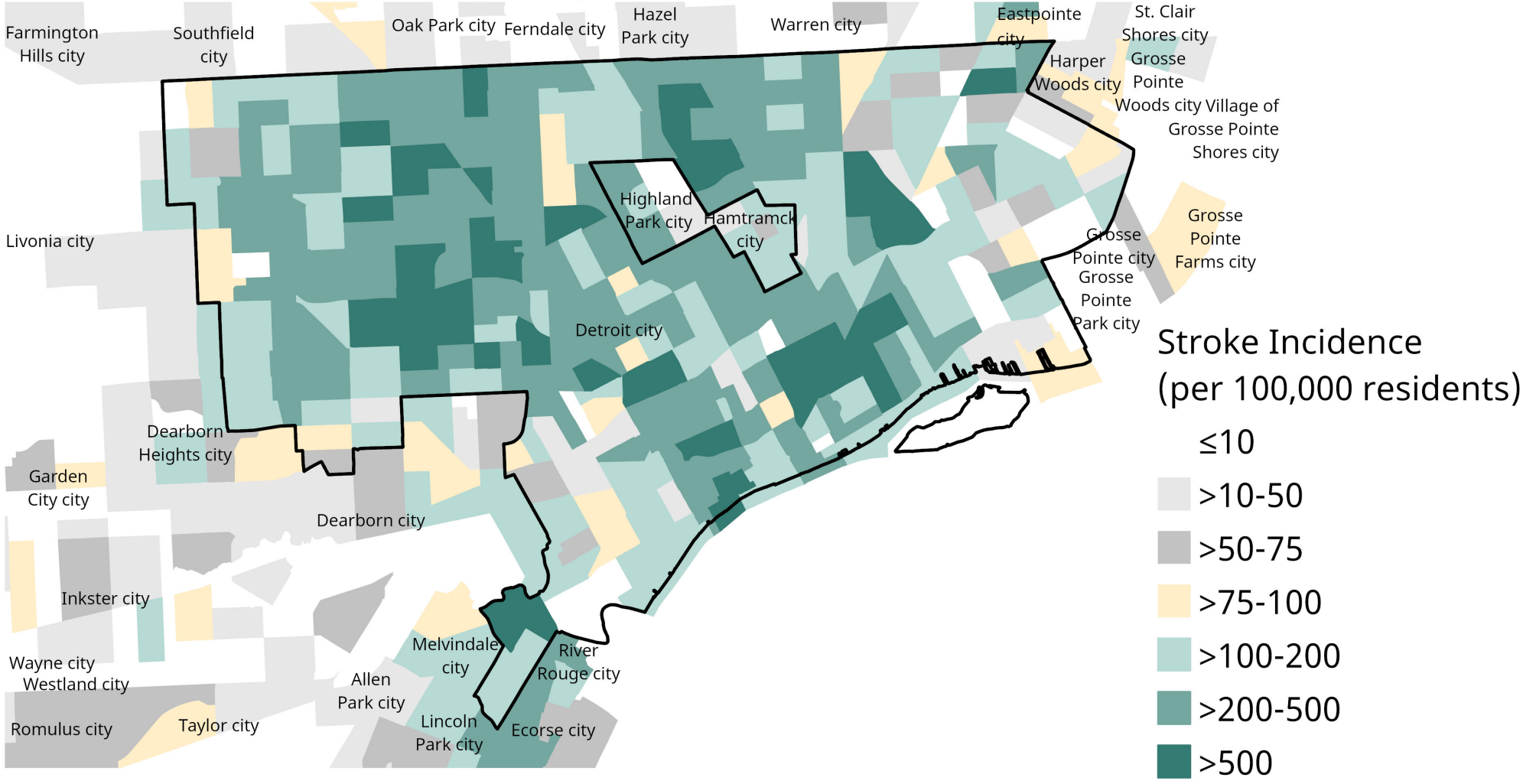
COVID-19 Vaccine Coverage Increase & MMHC Outreach



PHOENIX

Note: Data from MI Lighthouse. Percent increase based on population fully vaccinated for COVID-19 from August 24, 2021 through March 23, 2022. Medical Mobile Health Corps (MMHC) data complete through April 4, 2022.

Stroke Incidence Rate
Detroit Emergency Department Surveillance



PHOENIX

Note: Emergency department (ED) surveillance complete from November 2018 through December 2021. Among the total 4,194 stroke cases seen in Detroit EDs 1,179 (28%) were unable to be geocoded and are not represented here. Population denominator based on American Community Survey 2019 5-year estimates. Stroke cases based on emergency department encounters with ICD-10 codes I60-I68.998 (Emergency Department Syndrome & Custom Event Definitions, NC Detect).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