



Massachusetts Department of Public Health

Data, Determinants & Disparities: A framework to drive public health policy

Massachusetts Health Policy Forum:
Student Forum

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Commissioner

Massachusetts Department of Public Health

Wednesday, January 8, 2020

Patients as teachers

What will
it take to
make you
healthy?



PUBLIC HEALTH OVERVIEW

Baker-Polito Administration



Governor Charlie
Baker & Lieutenant
Governor Karyn
Polito



Health and Human
Services Secretary
Marylou Sudders



Department of
Public Health
Commissioner
Monica Bharel

About DPH



1799

History of department
dates to Paul Revere



8 Bureaus, 6 Offices

DPH covers a range of issues
from birth until death



15 sites, 3000 employees

DPH is located across the
Commonwealth, and partners with
local boards of health



\$1 billion

Annual budget, comprised of
federal, state, and grant funding

The Range of DPH

Prevention and Wellness – Health Access – Nutrition – Perinatal and Early Childhood – Adult Treatment – Data Analytics and Support – Housing and Homelessness – Violence and Injury Prevention – Office of Statistics and Evaluation – Childhood Lead Poisoning Prevention – Community Sanitation – Drug Control – Occupational Health Surveillance – PWTF – SANE Program – Interagency Initiatives – Planning and Development – Prevention – Problem Gaming – Quality Assurance and Licensing – Youth and Young Adults – Early Intervention – Children and Youth with Special Needs – Epidemiology Program – Immunization Program – Global Populations and Infectious Disease Prevention – STI Prevention – HIV/AIDS – Integrated Surveillance and Informatics Services – Clinical Microbiology Lab – Chemical Threat, Environment and Chemistry Lab – Childhood Lead Screening – Environmental Microbiology and Molecular Foodborne Lab – STD/HIV Laboratories – Biological Threat Response Lab – Central Services and Informatics – Quality Assurance – Safety and Training – Health Care Certification and Licensure – Health Professional Licensure – Office of Emergency Medical Services – DoN – Medical Use of Marijuana – Shattuck Hospital – Mass Hospital School – Tewksbury Hospital – Western MA Hospital – State Office of Pharmacy Services – Office of Local and Regional Health – Office of Health Equity – Accreditation and Performance Management – ODMOA – OPEM – HR and Diversity – Office of General Counsel – Office of CFO – Commissioner's Office

Massachusetts DPH will continue to be a **national leader** in innovative, outcomes-focused public health based on a **data-driven** approach, with a focus on **quality public health and health care services** and an emphasis on the social determinants and **eradication of health inequities**.

VISION

Optimal health and well-being for all people in Massachusetts, supported by a strong public health infrastructure and healthcare delivery.

MISSION

The mission of the Massachusetts Department of Public Health (DPH) is to prevent illness, injury, and premature death; to ensure access to high quality public health and health care services; and to promote wellness and health equity for *all* people in the Commonwealth.

DATA

We provide relevant, timely access to data for DPH, researchers, press and the general public in an effective manner in order to target disparities and impact outcomes.

DETERMINANTS

We focus on the social determinants of health - the conditions in which people are born, grow, live, work and age, which contribute to health inequities.

DISPARITIES

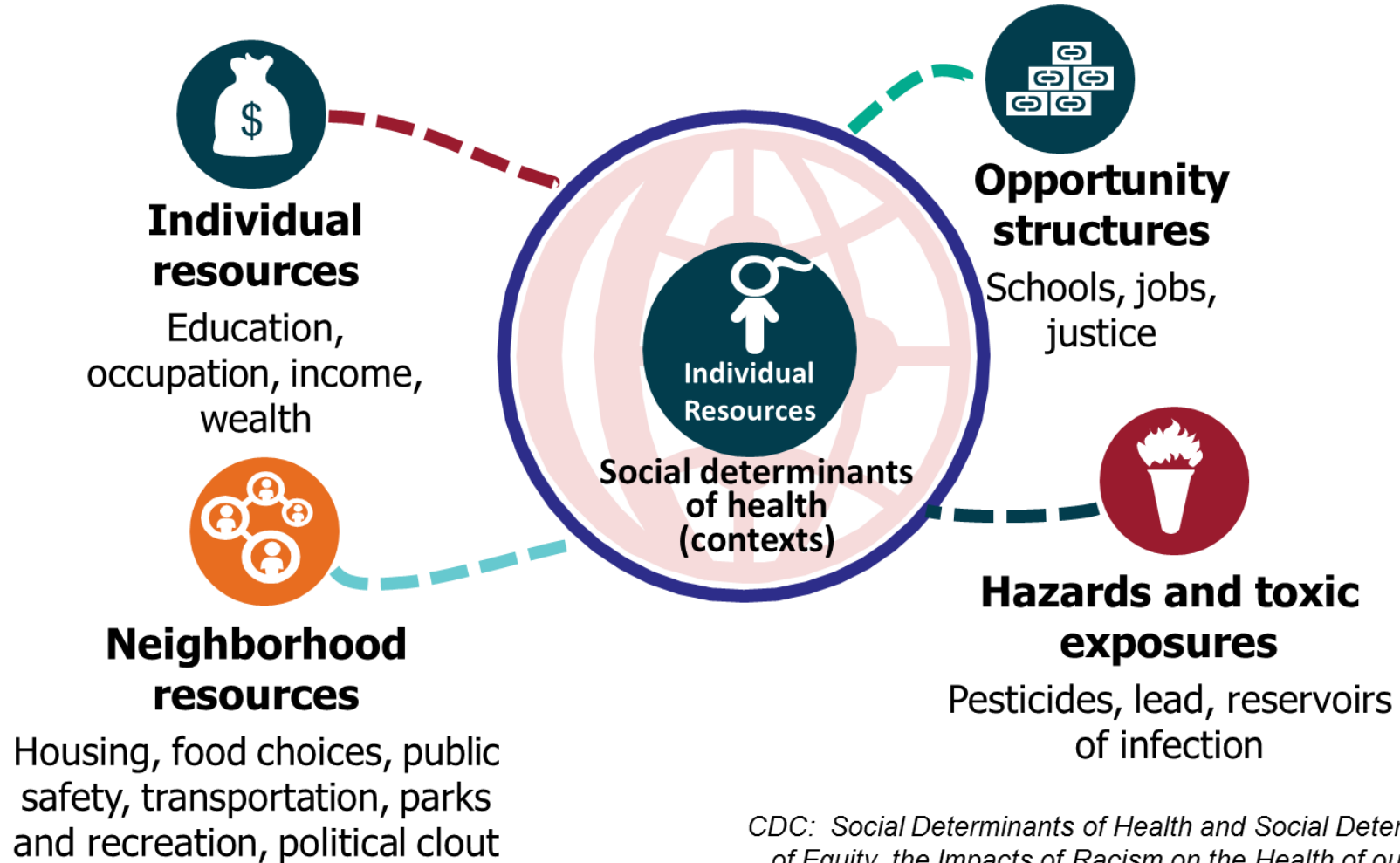
We consistently recognize and strive to eliminate health disparities amongst populations in Massachusetts, wherever they may exist.

EVERYDAY EXCELLENCE

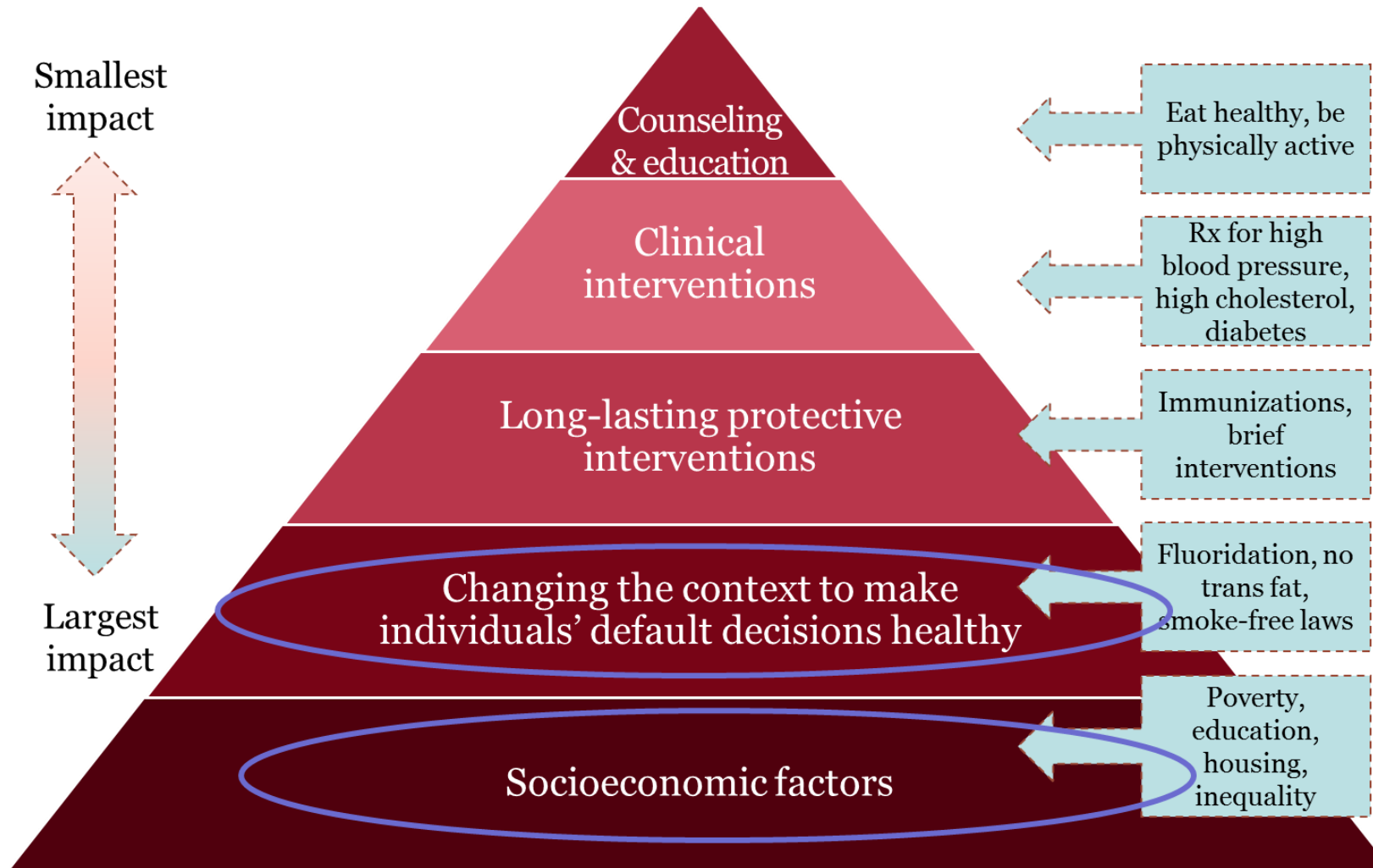
PASSION AND INNOVATION

INCLUSIVENESS AND COLLABORATION

Social Determinants

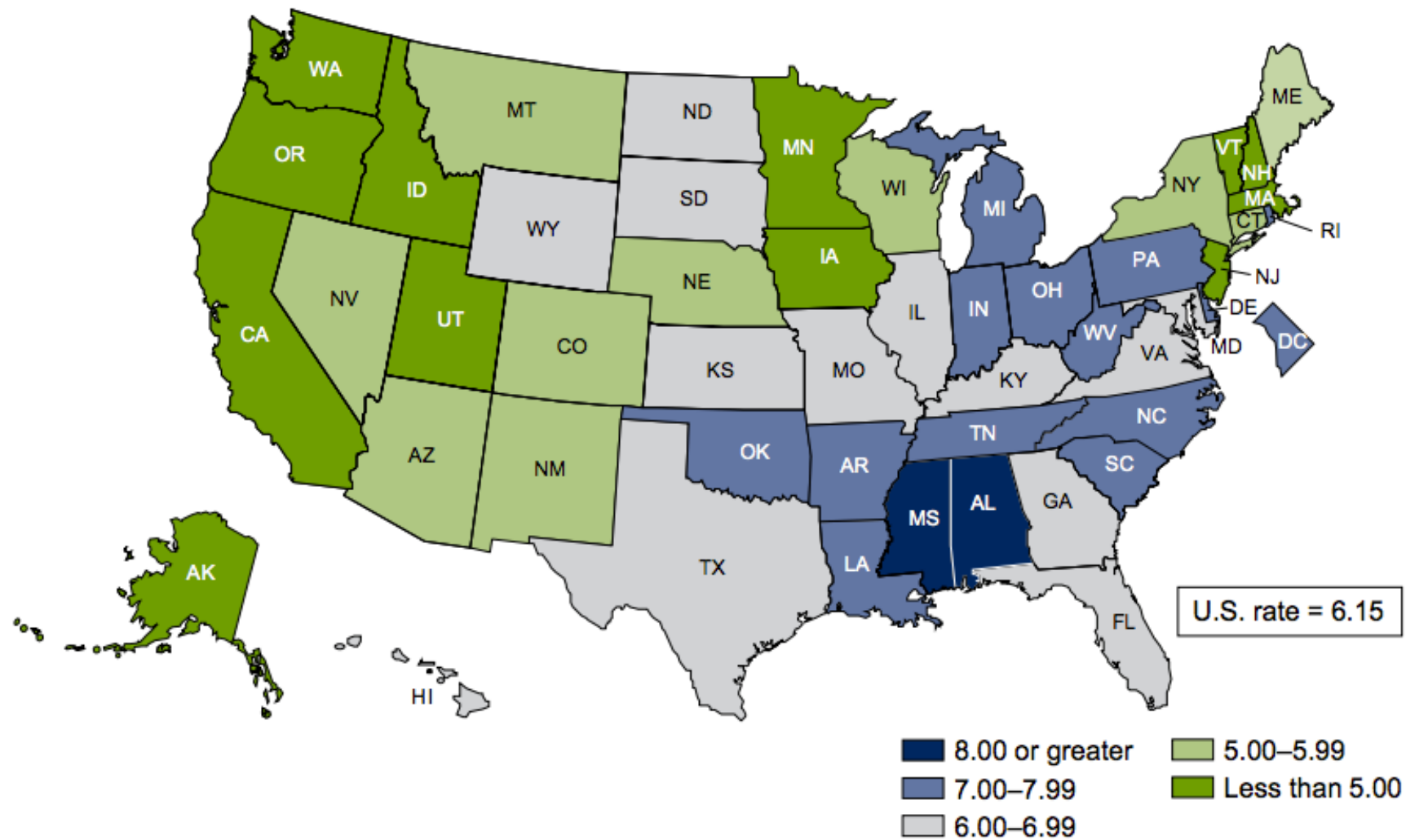


CDC Health Impact Pyramid

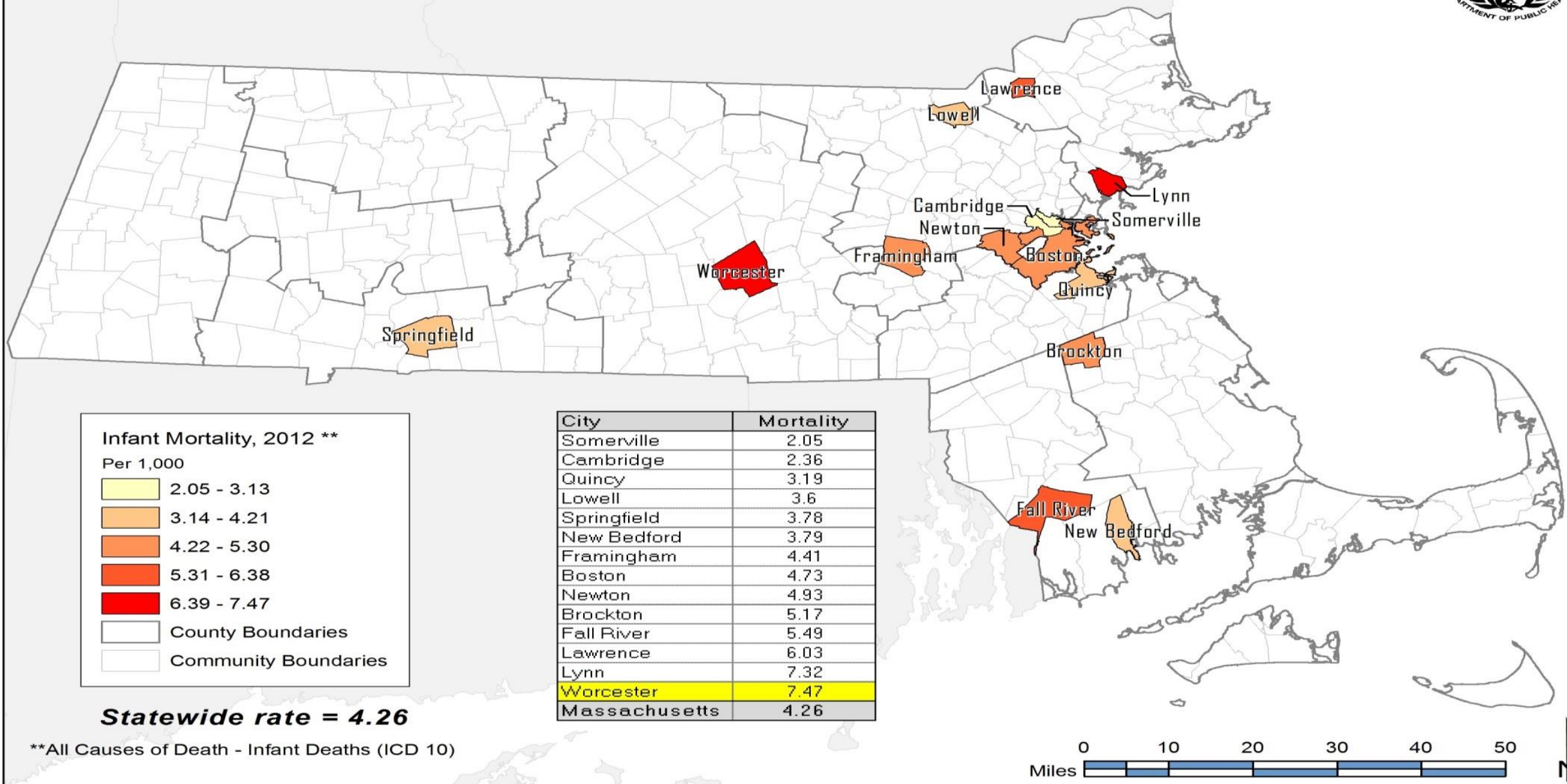


A FOCUS ON HEALTH EQUITY

U.S. Infant Mortality Rate 2011

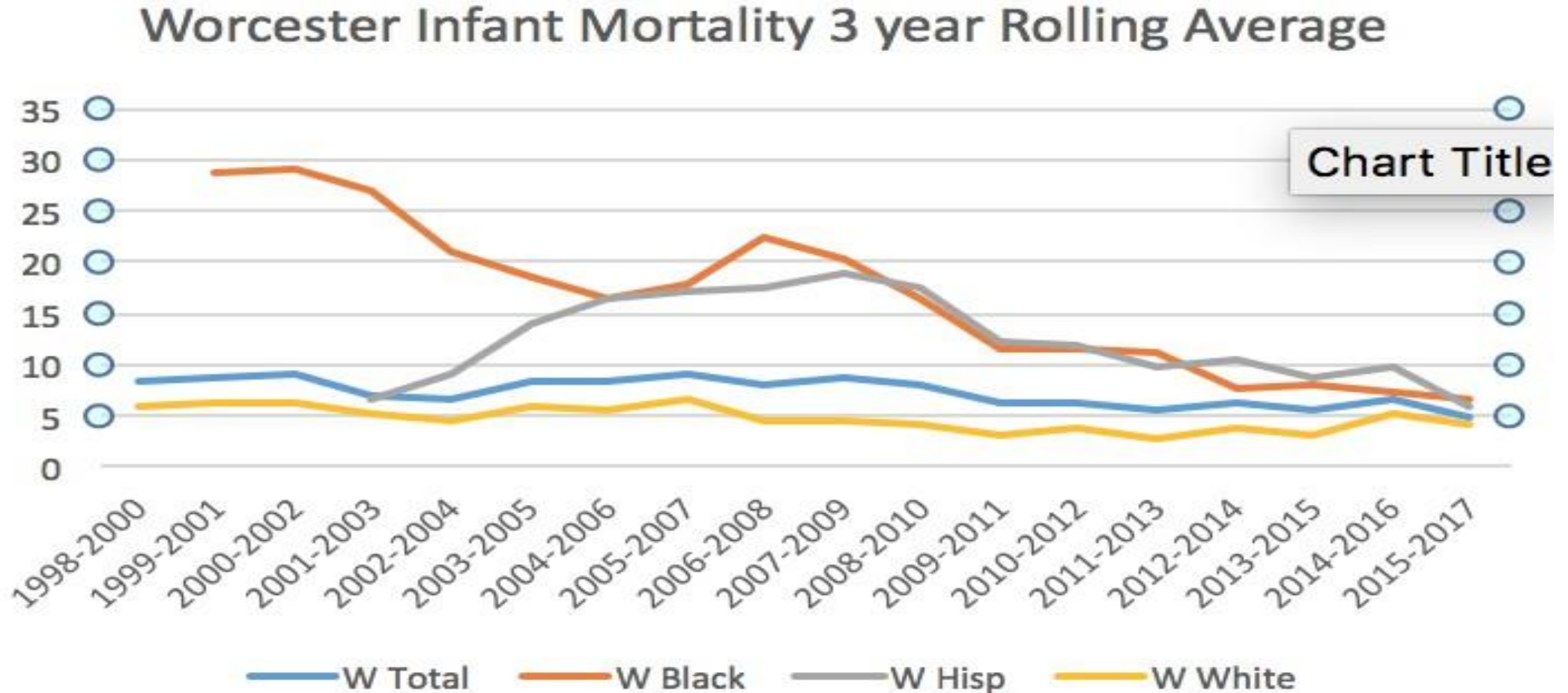


Infant Mortality Rates in Massachusetts' Largest Cities 2012



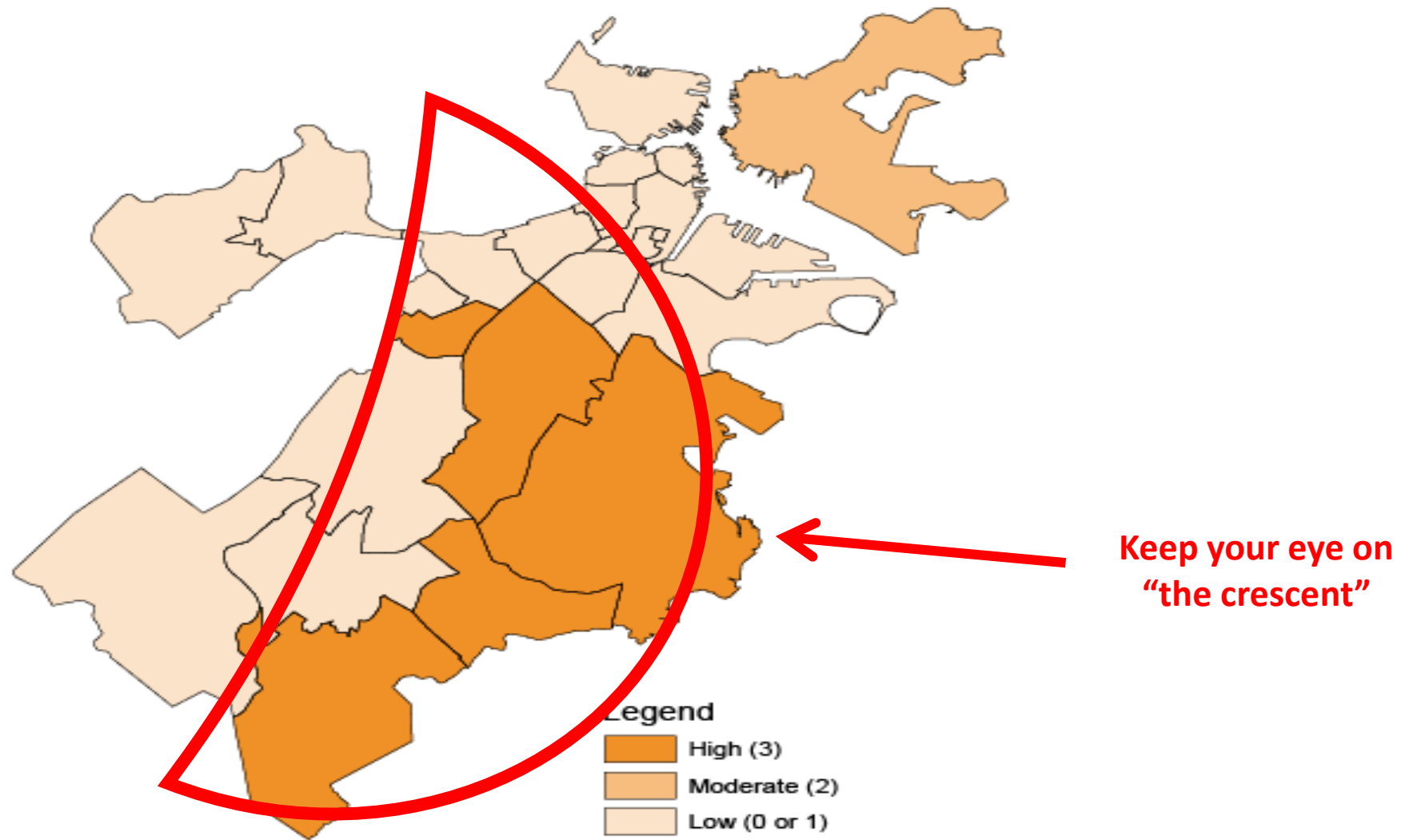
**All Causes of Death - Infant Deaths (ICD 10)

Worcester Infant Mortality

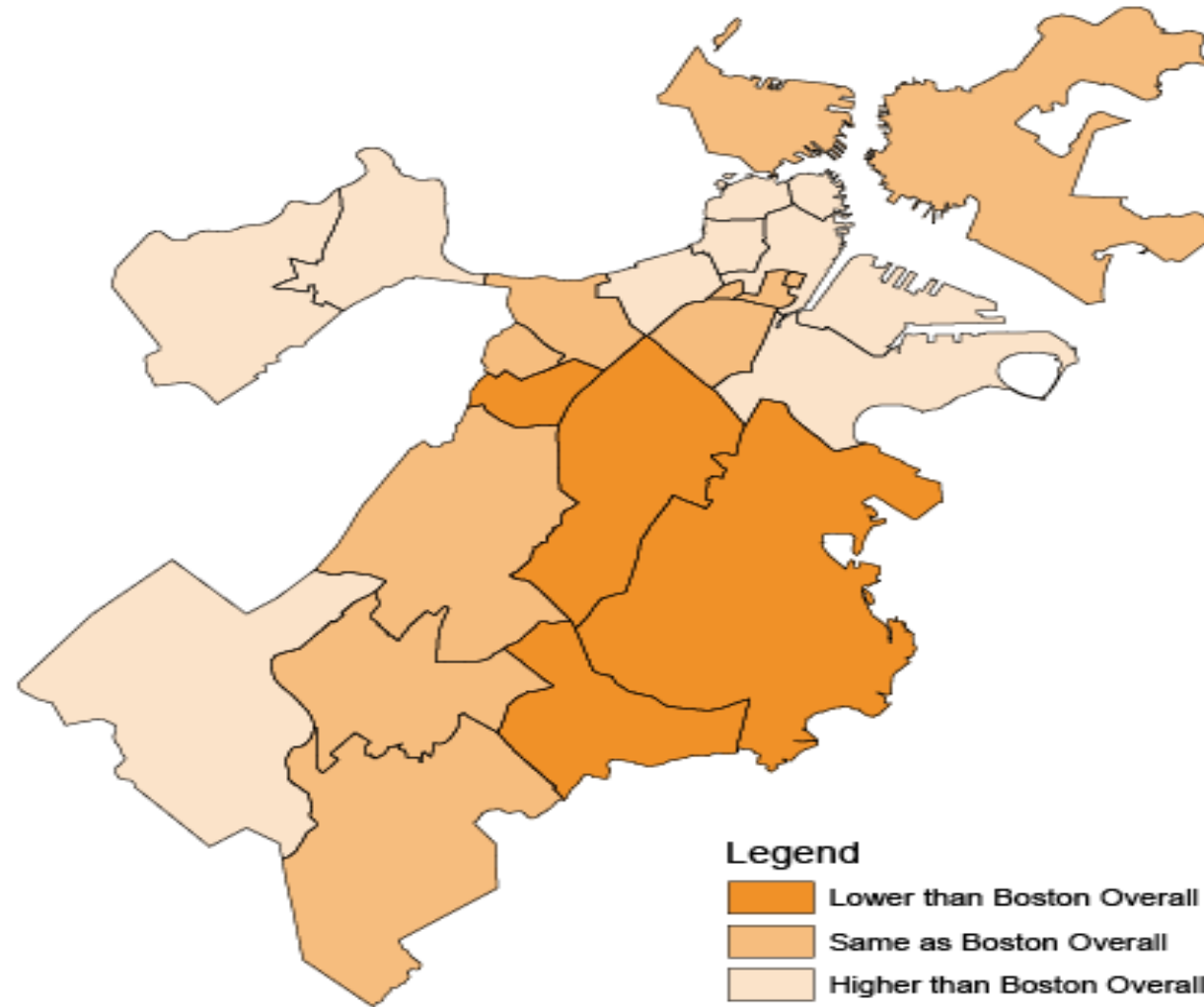


Source: Worcester Healthy Baby Collaborative

Boston Neighborhoods with High Rates of Chronic Disease Hospitalizations

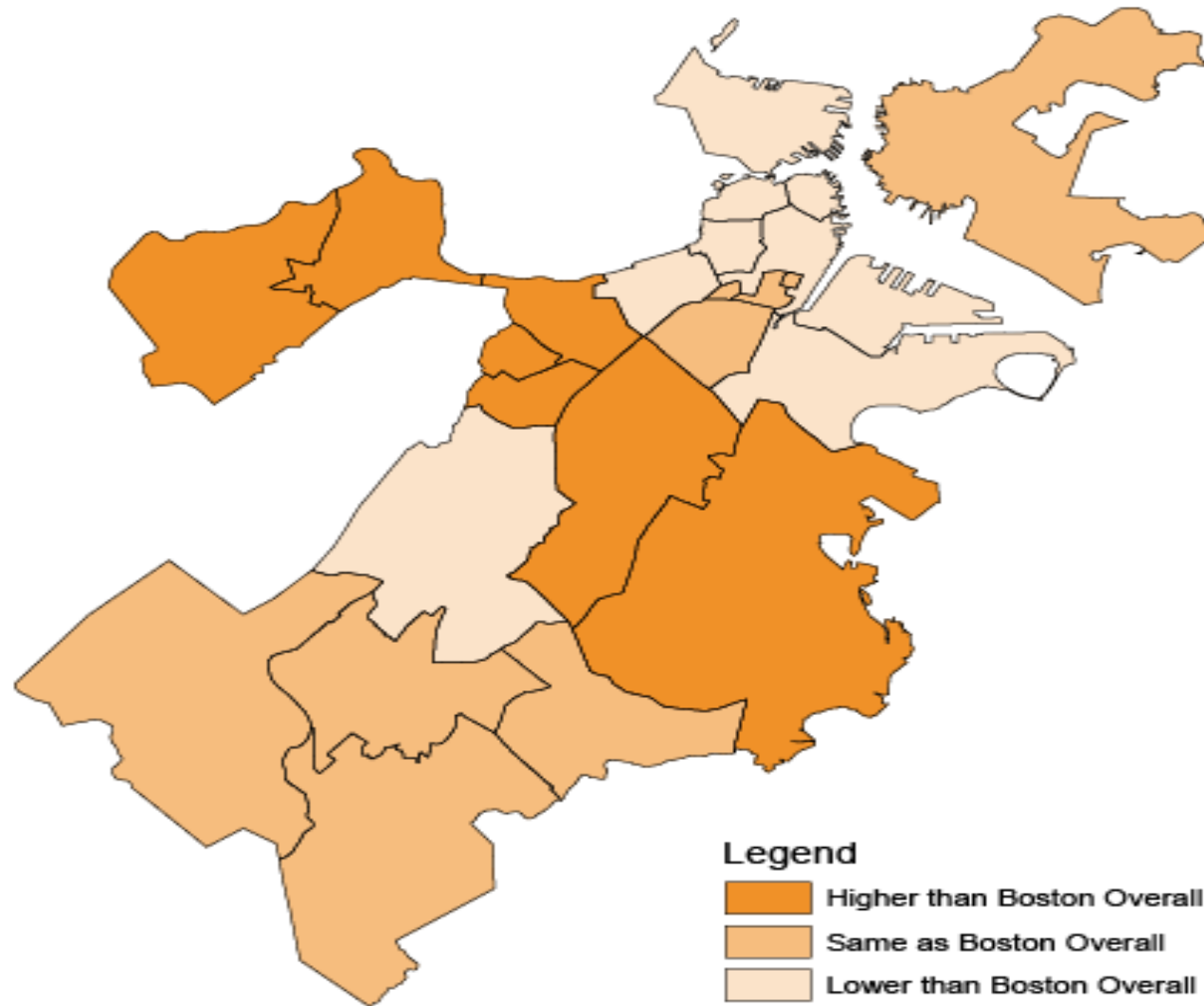


Boston Neighborhoods with Poor Perceived Safety



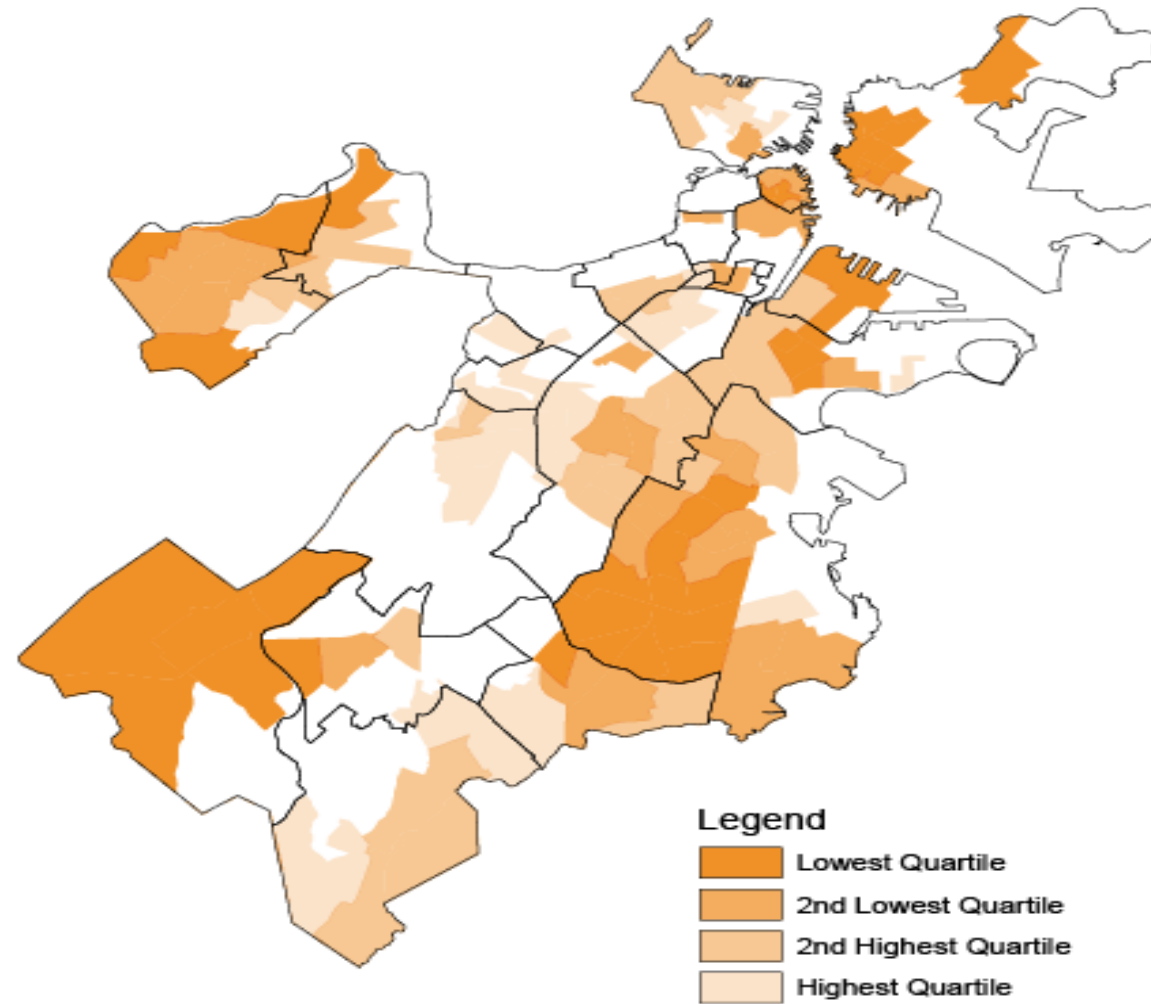
*Boston Neighborhood Survey (BNS), 2008; Harvard Youth Prevention Center through Cooperative agreement with the CDC

Boston Neighborhoods with a High Rent Burden



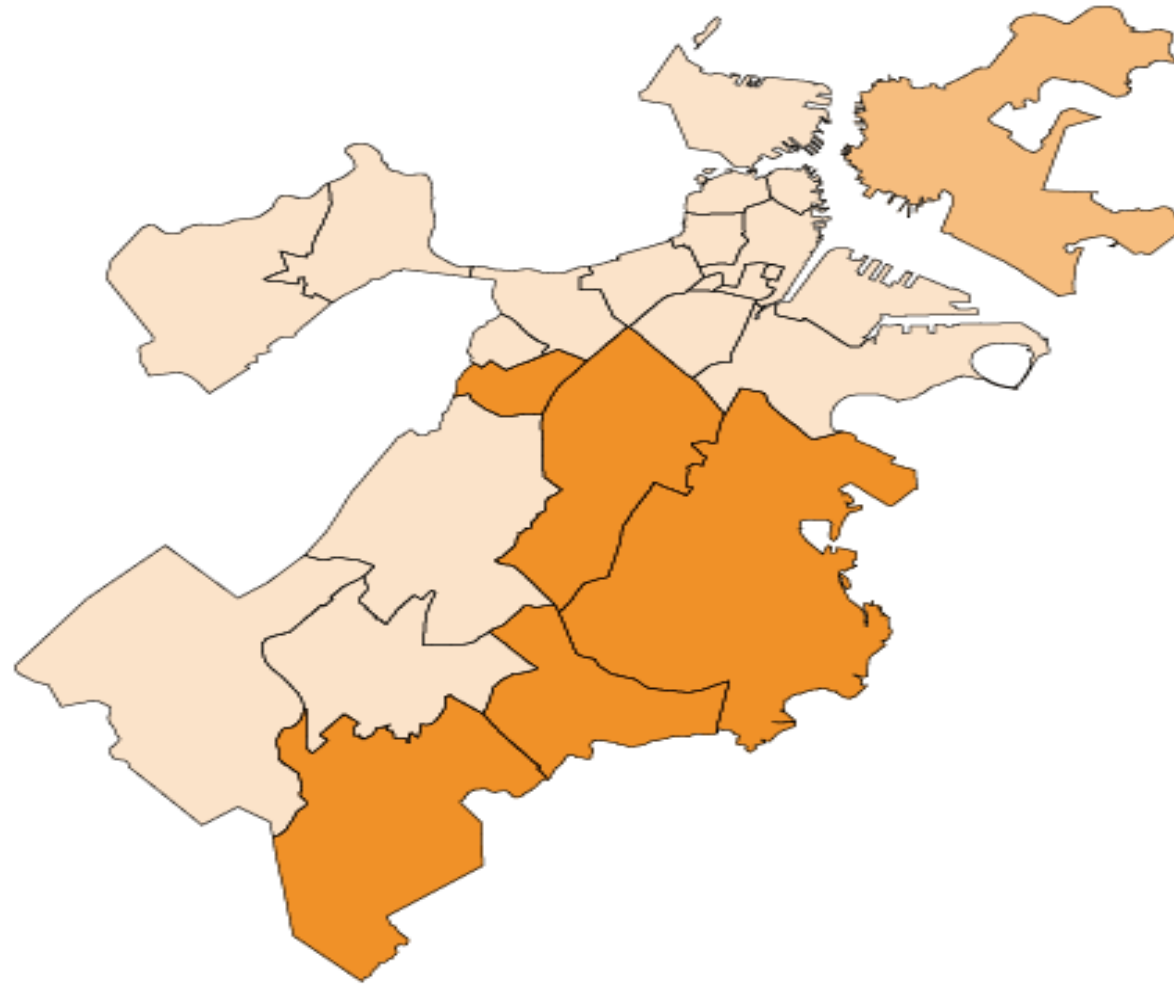
* American Community Survey, 2008-2012, US Census Bureau

Boston Neighborhoods with Low Access to Healthy Food (mRFEI)

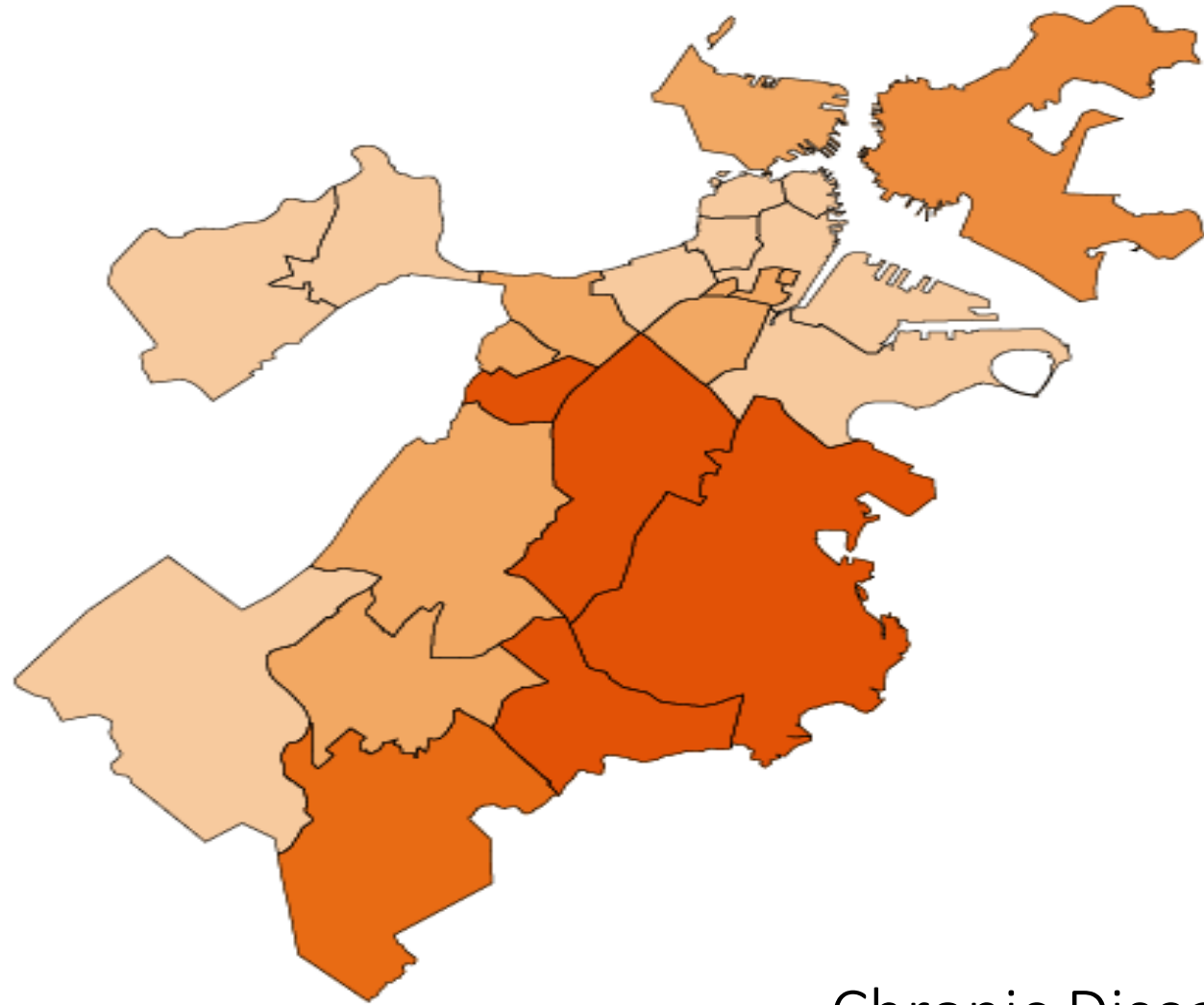


* Modified Retail Food Environment Index, CDC

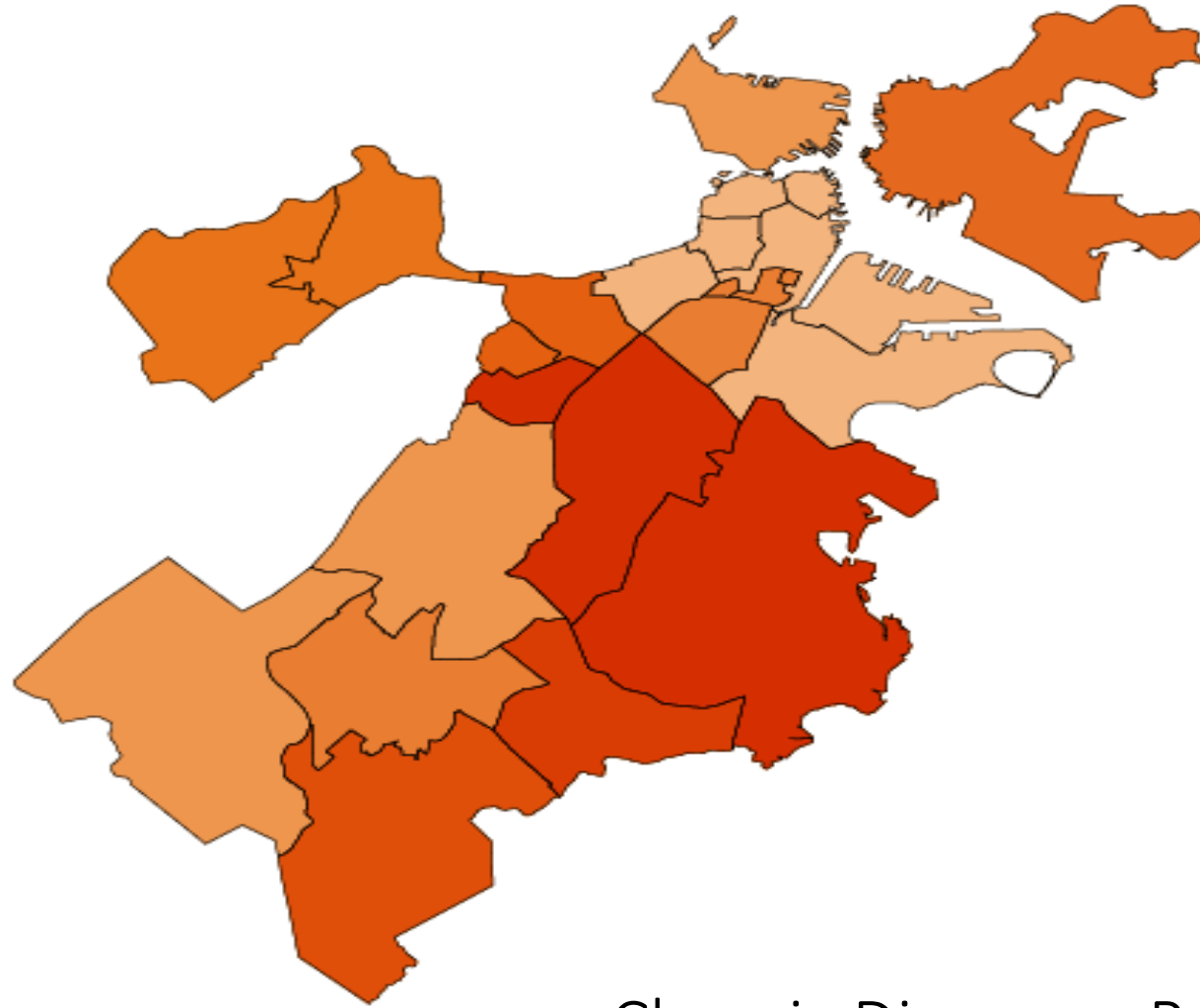
But put them all together and...



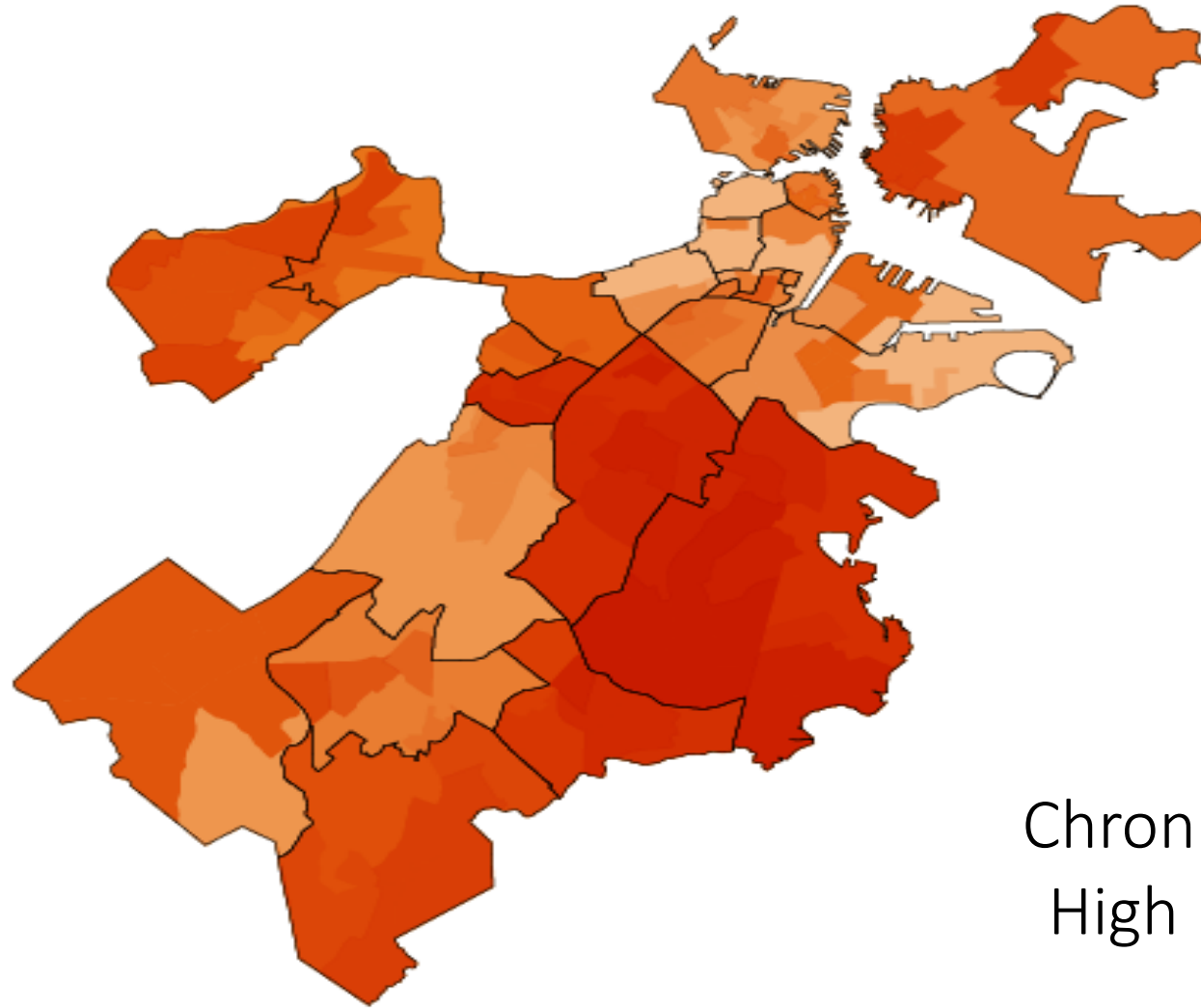
High rates of Chronic Disease



Chronic Disease + Poor Safety



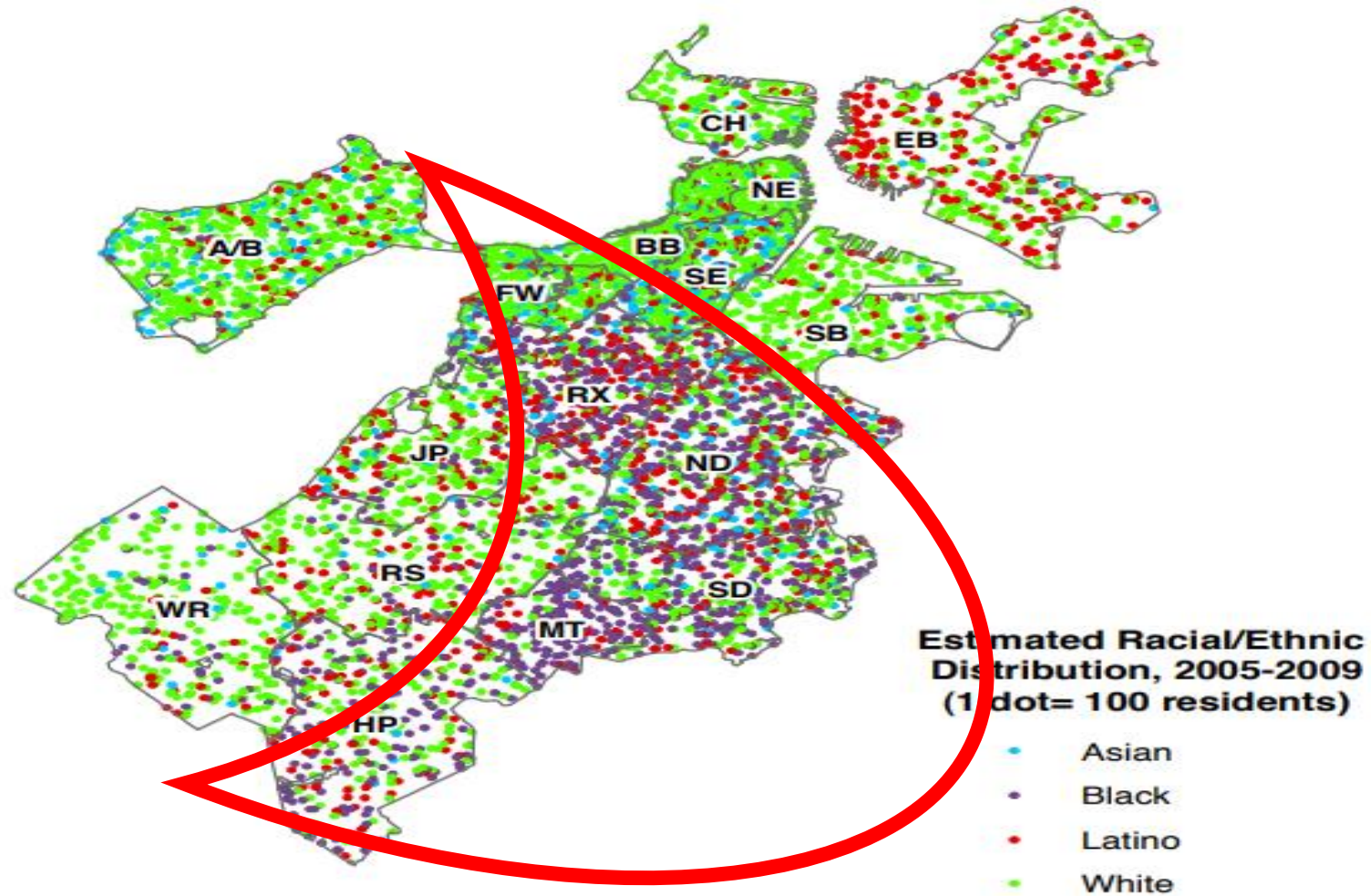
Chronic Disease + Poor Safety + High Rent



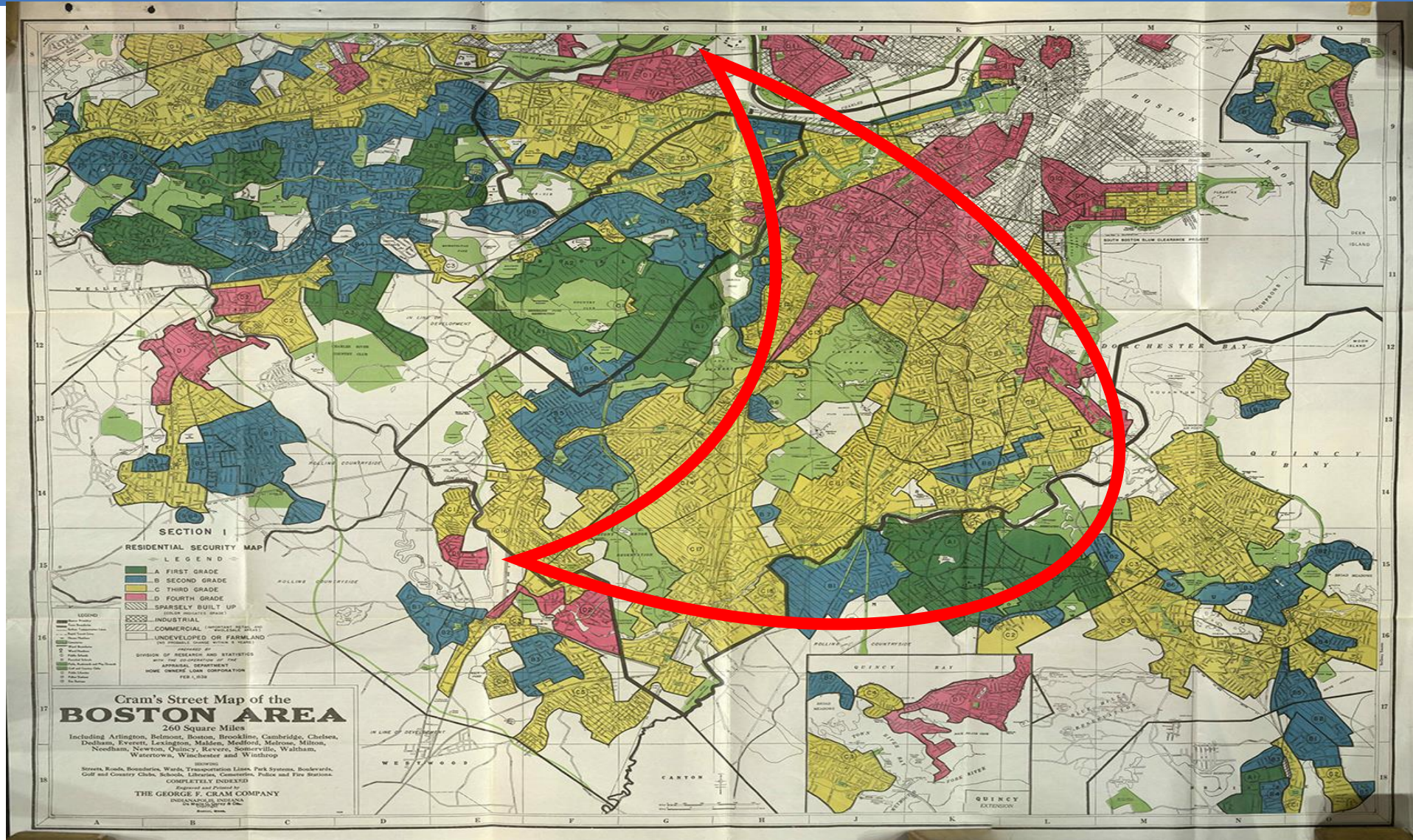
Chronic Disease + Poor Safety +
High Rent + Poor Food Access

What else is going on in “the crescent”...

Place Matters



Redlining of Boston Neighborhoods



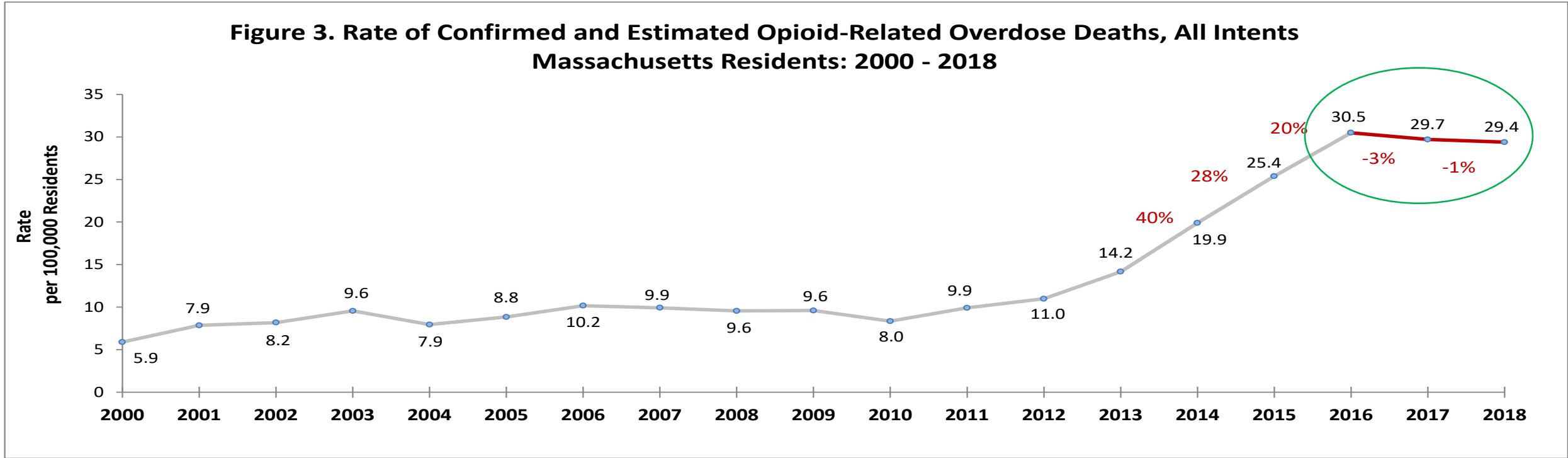
Health Priorities - Social Determinants of Health



Case Study: Opioid Data

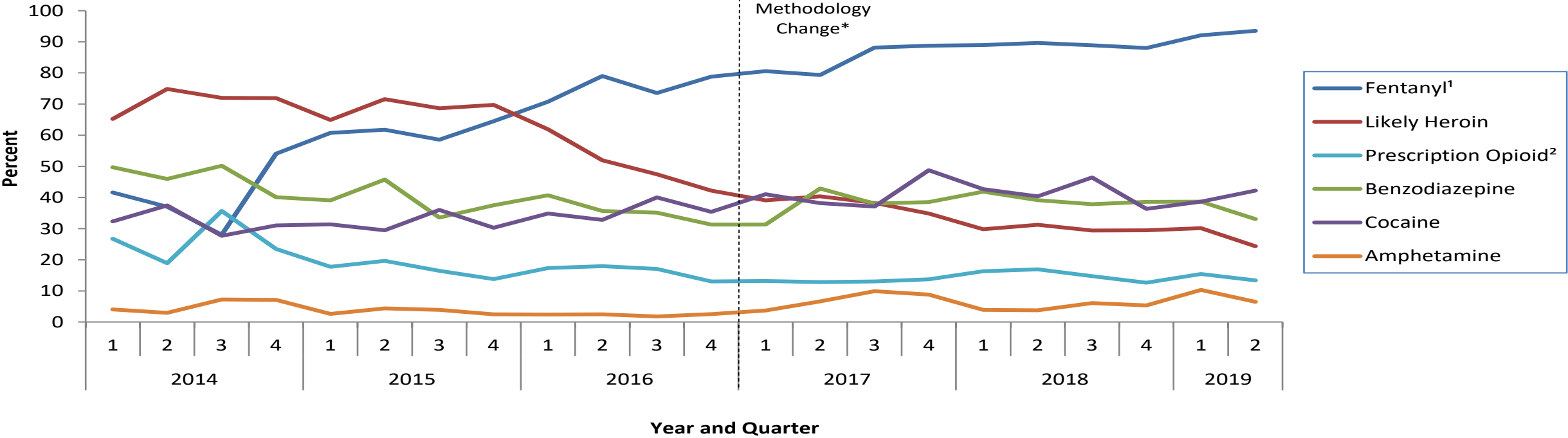
Analyzing data, determinants and disparities to produce good policy

The rate of opioid-related overdose deaths decreased for a second straight year – for a total of an estimated 4% decrease from 2016 to 2018.

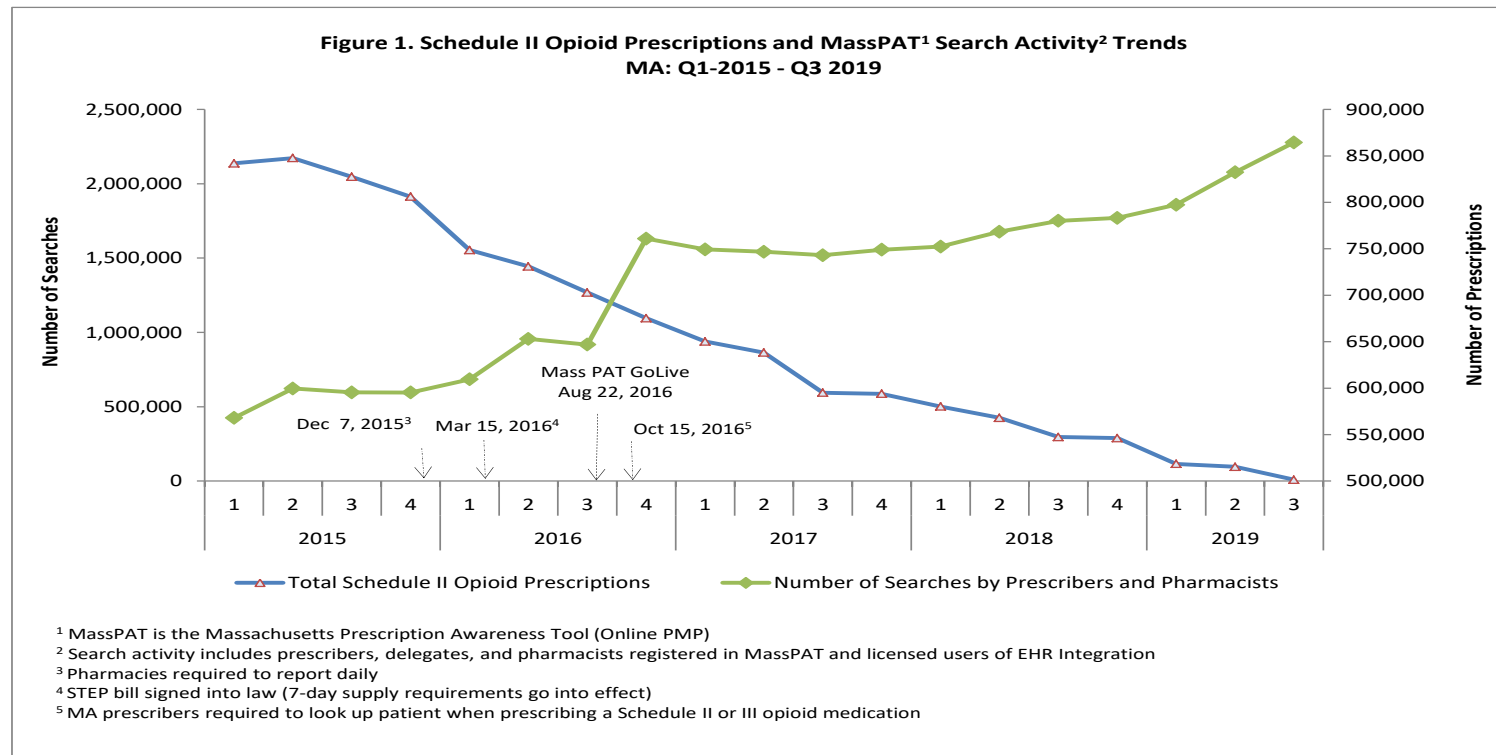


Fentanyl remains a key factor in opioid-related overdose deaths (93% present in toxicology screen).

Figure 4. Percent of Opioid-Related Overdose Deaths with Specific Drugs Present
Massachusetts Residents: 2014 - Q2 2019



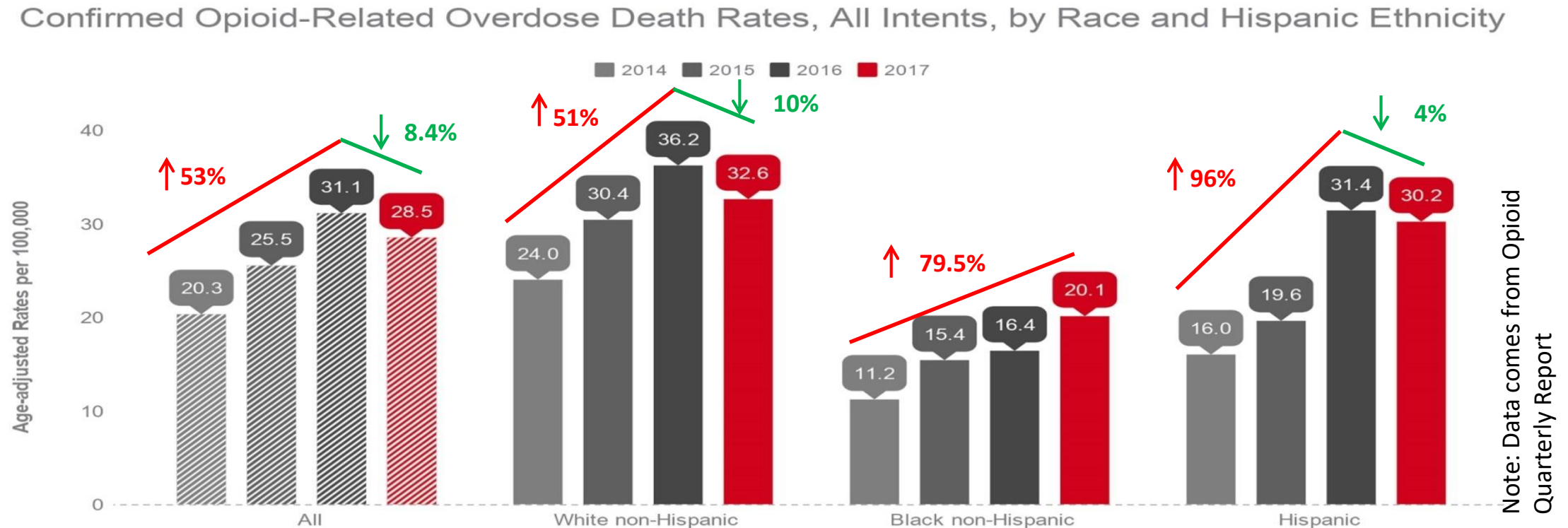
Prescription Monitoring Program – Data Trends



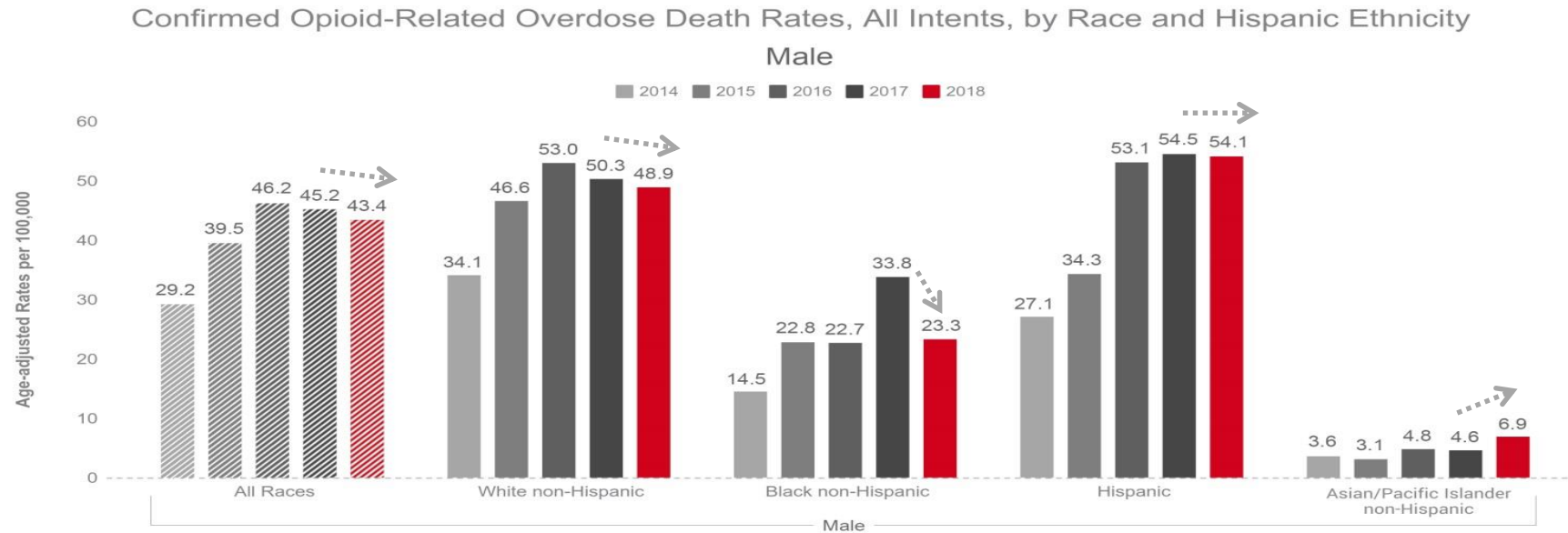
- Registered MassPAT providers conducted more than 2.2 million searches in the 3rd quarter of 2019, an increase of approximately 200,000 searches since the previous quarter.
- There were just over 500,000 Schedule II opioid prescriptions reported to the MA PMP in the 3rd quarter of 2019; this is a notable decrease from the previous quarter and just over a 40% decrease from the 1st Quarter of 2015.
- In the 3rd quarter of 2019, just over 227,000 individuals in Massachusetts received prescriptions for Schedule II opioids; this is a small, but notable, decrease from the previous quarter and nearly a 42% decrease from the 1st quarter of 2015.

Opioid Death Rate by Race/Ethnicity

- **Key Finding:** Between 2016 and 2017, confirmed opioid-related overdose death rate increased for Black non-Hispanics, decreased for White non-Hispanics and Hispanics



Death rates for males of all races and ethnicities except Asian/Pacific Islanders decreased between 2017 and 2018. Hispanic opioid-related overdose death rate remained the highest death rate across all racial/ethnic groups since 2016.



Chapter 55 Report & Data Brief



An Assessment of Fatal and Nonfatal Opioid Overdoses in Massachusetts (2011 – 2015)

August 2017

Data Brief An Assessment of Opioid-Related Overdoses in Massachusetts 2011-2015

Massachusetts Department of Public Health RELEASED: August 2017

Background

Chapter 55 of the Acts of 2015 (Chapter 55) was passed by the Massachusetts Legislature and signed into law by Governor Charles D. Baker in August 2015. This law permitted the linkage and analysis of different government data sets to better understand the opioid epidemic, guide policy development, and help make programmatic decisions. Chapter 55 resulted in an in-depth report examining the factors driving the opioid crisis in Massachusetts. The law was reauthorized in Chapter 133 of the Acts of 2016, enabling this unprecedented analysis to continue supporting the Commonwealth's data-driven response to the opioid epidemic. This data brief highlights key findings from the second Chapter 55 report released in August 2017. In the twelve months since the first Chapter 55 report was released in September 2016, nearly 2,000 Massachusetts residents have died of opioid-related overdoses. The total number of deaths has increased five-fold in the last 20 years, but the rate of increase of opioid-related overdose deaths was particularly sharp between 2013 and 2014. The maps below show a graphic depiction of the increasing and spreading opioid crisis in Massachusetts between 2011 and 2015 (the darkening area on the maps below).

Increasing and Spreading Opioid-Related Overdose Death Rates in Massachusetts from 2011 to 2015¹



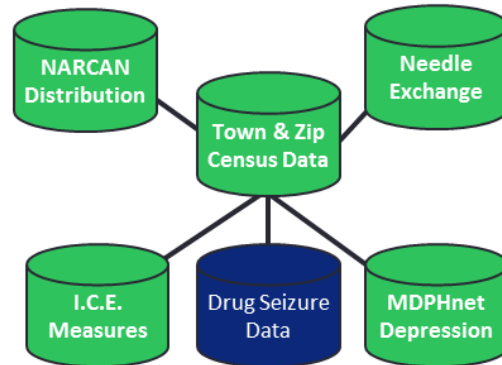
What is especially notable is the epidemic's rapid and insidious geographic spread throughout the Commonwealth. Almost every community is affected. Opioid-related overdose deaths and nonfatal opioid-related overdoses are highest among younger males, but all population subgroups have seen increases in recent years. Individuals released from incarceration are also at high risk of death upon re-entering the community, but so too are individuals experiencing homelessness, veterans, mothers with opioid use disorder, and individuals with serious mental illnesses.

Data Mapping

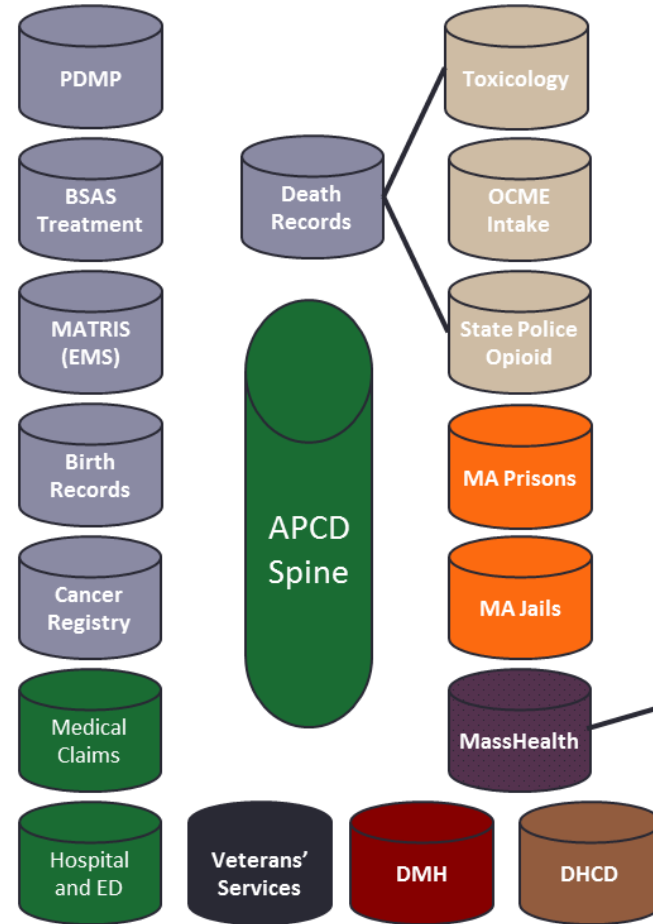
Data Sources



Community Level Data



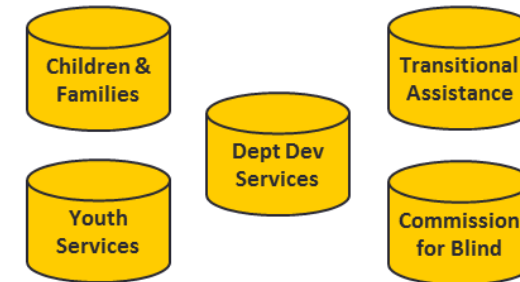
Chapter 55 Data Structure



System Attributes

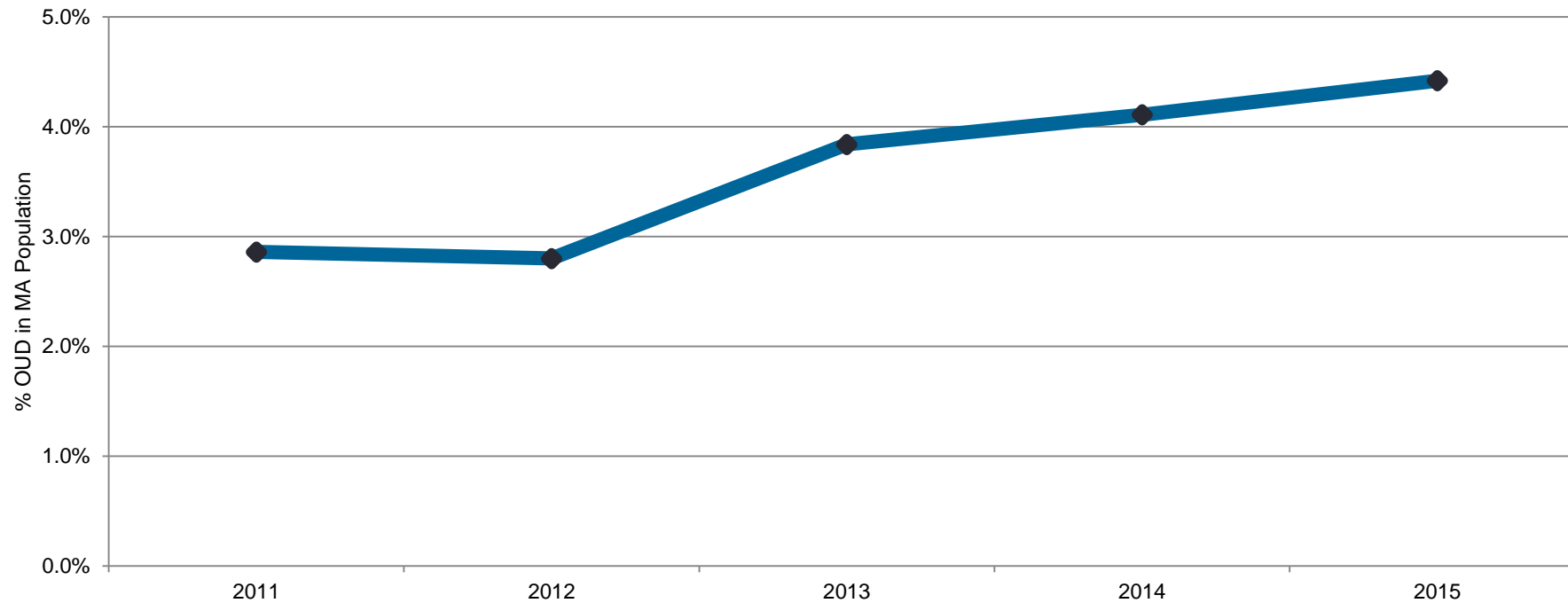
- Linkage at individual level
- Longitudinal (5 year history)
- Data encrypted in transit & at rest
- Limited data sets unlinked at rest
- Linking and analytics "on the fly"
- No residual files after query completed
- Analysts can't see data
- Automatic cell suppression

Service Indicator Flags

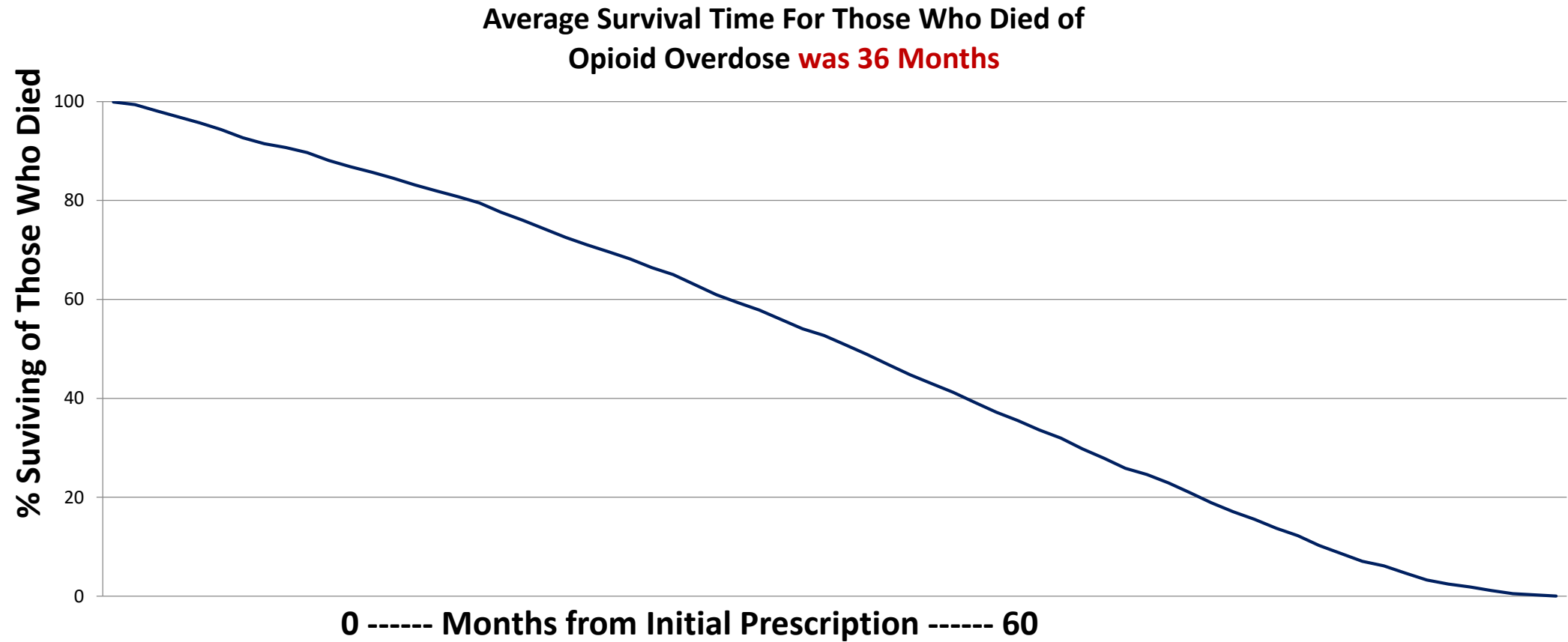


Opioid Use Disorder (OUD)

**Estimated OUD Population Rises Significantly
Between 2011-2015**



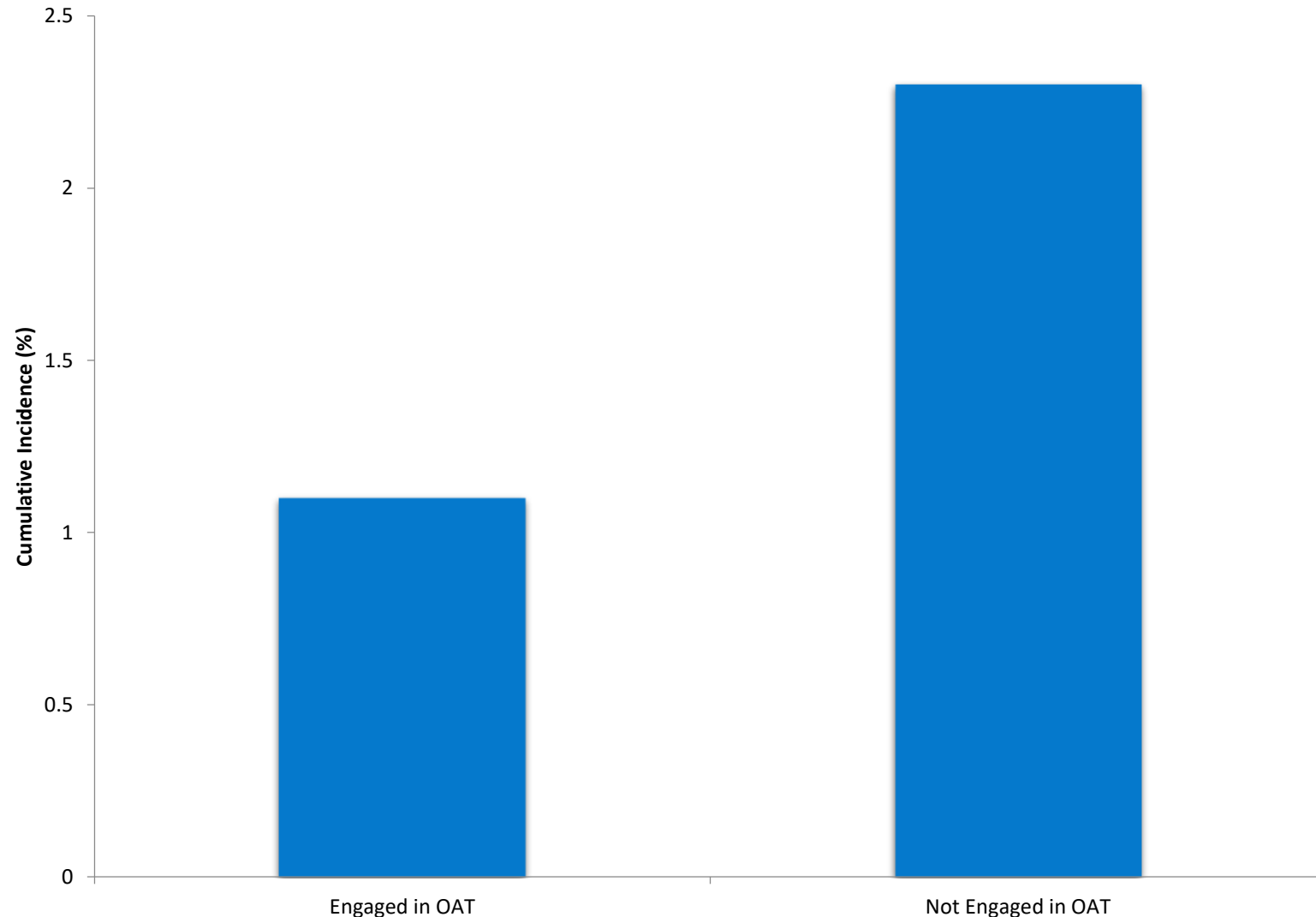
Time From Initial Rx to Overdose Death



Treatment with Medication

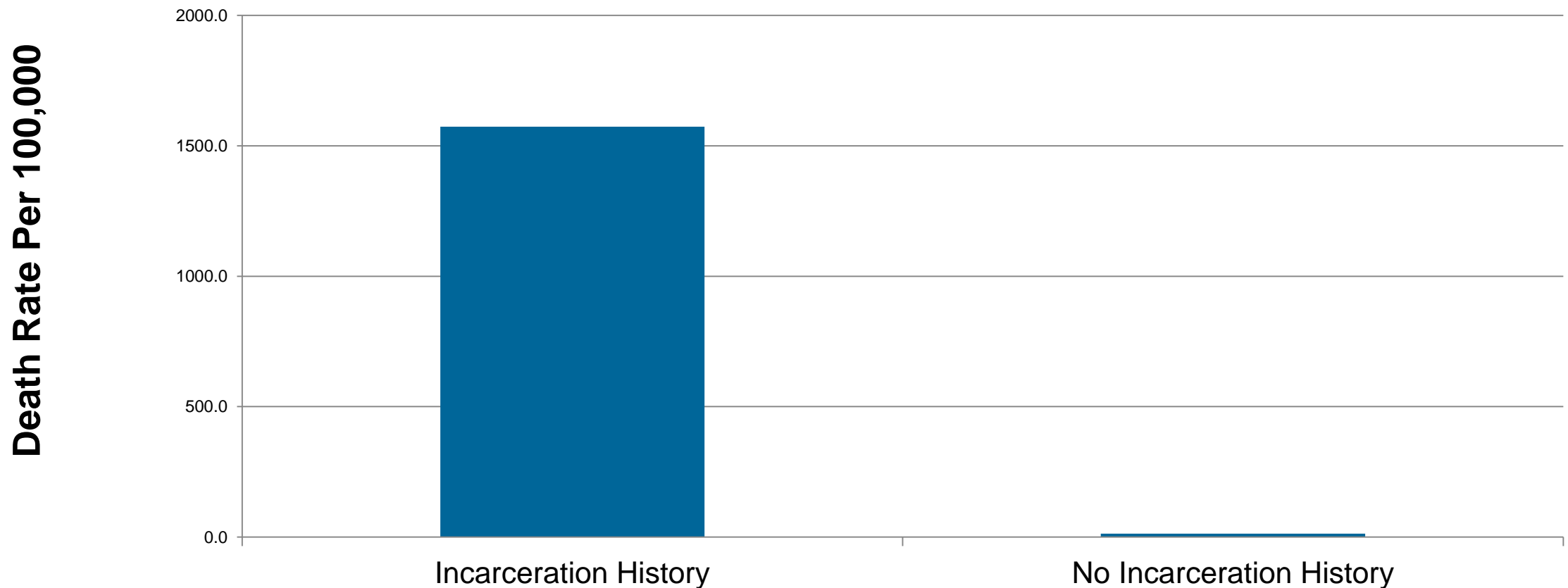
- Patients treated with methadone and/or buprenorphine (Opioid Agonist Treatment or “OAT” that block the effect of opioids) following a non-fatal overdose were significantly less likely to die; however, very few patients (~5%) engage in OAT following a non-fatal overdose.

Figure 2: Cumulative Incidence of Opioid-Related Death by OAT Status



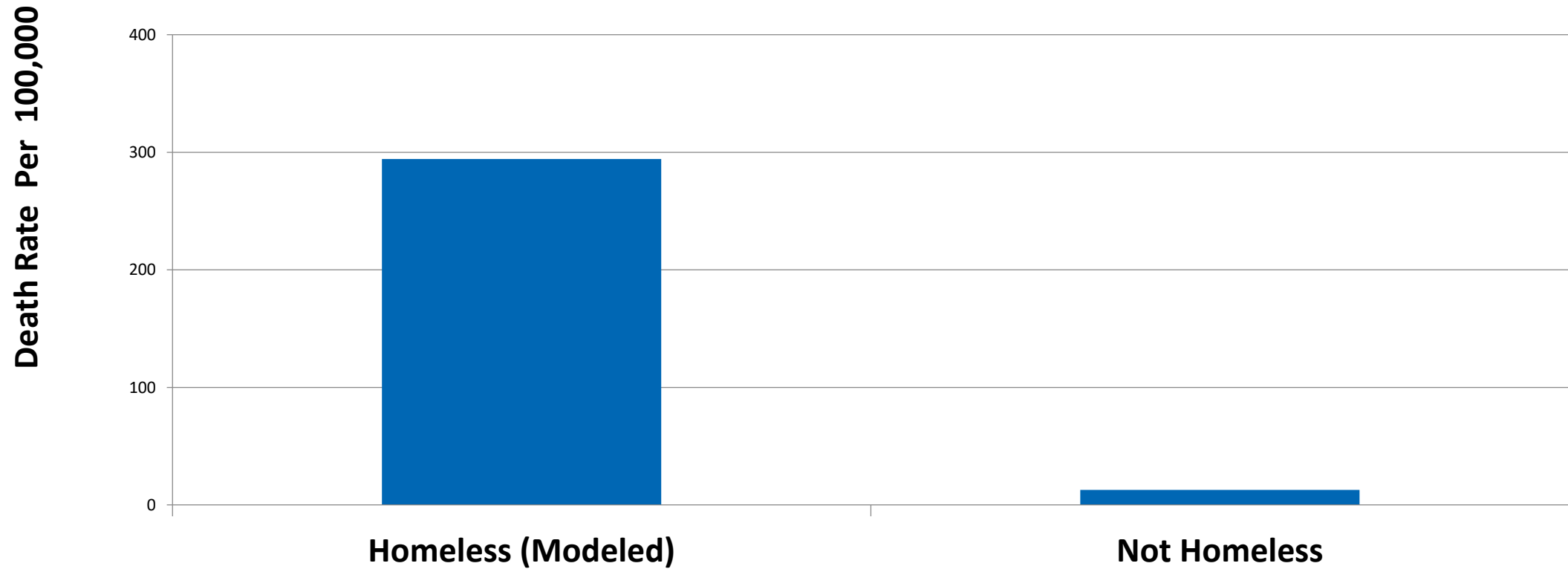
Persons with Histories of Incarceration

**Opioid Death Rate 120 Times Higher
for Individuals with Histories of Incarceration**



Persons Experiencing Homelessness

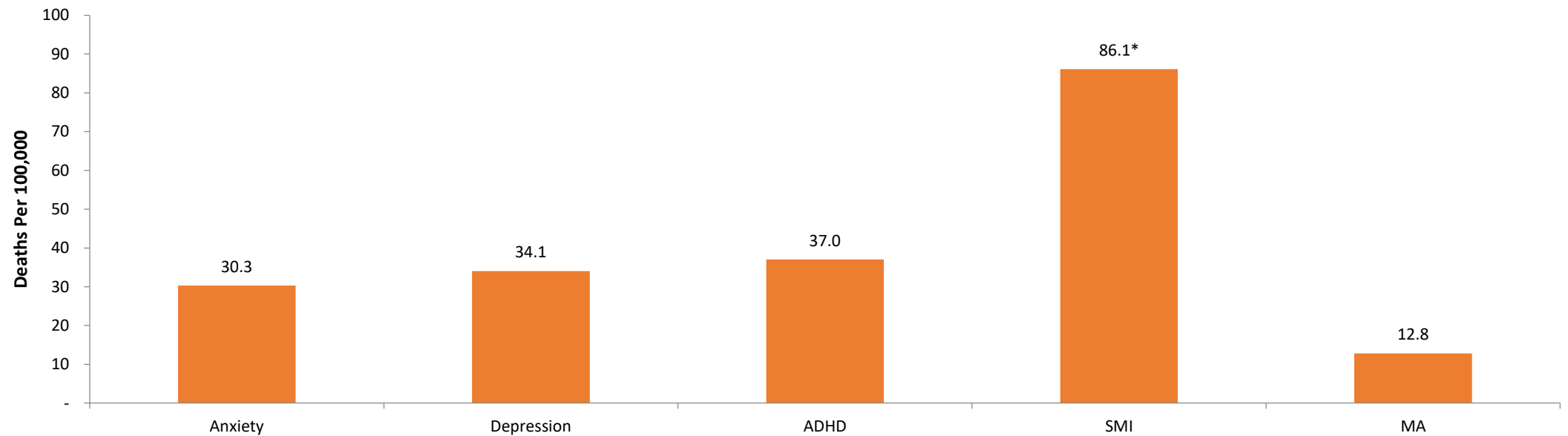
Opioid Death Rate **30 Times Higher**
for the Homeless Individuals



Individuals with Serious Mental Illnesses

41

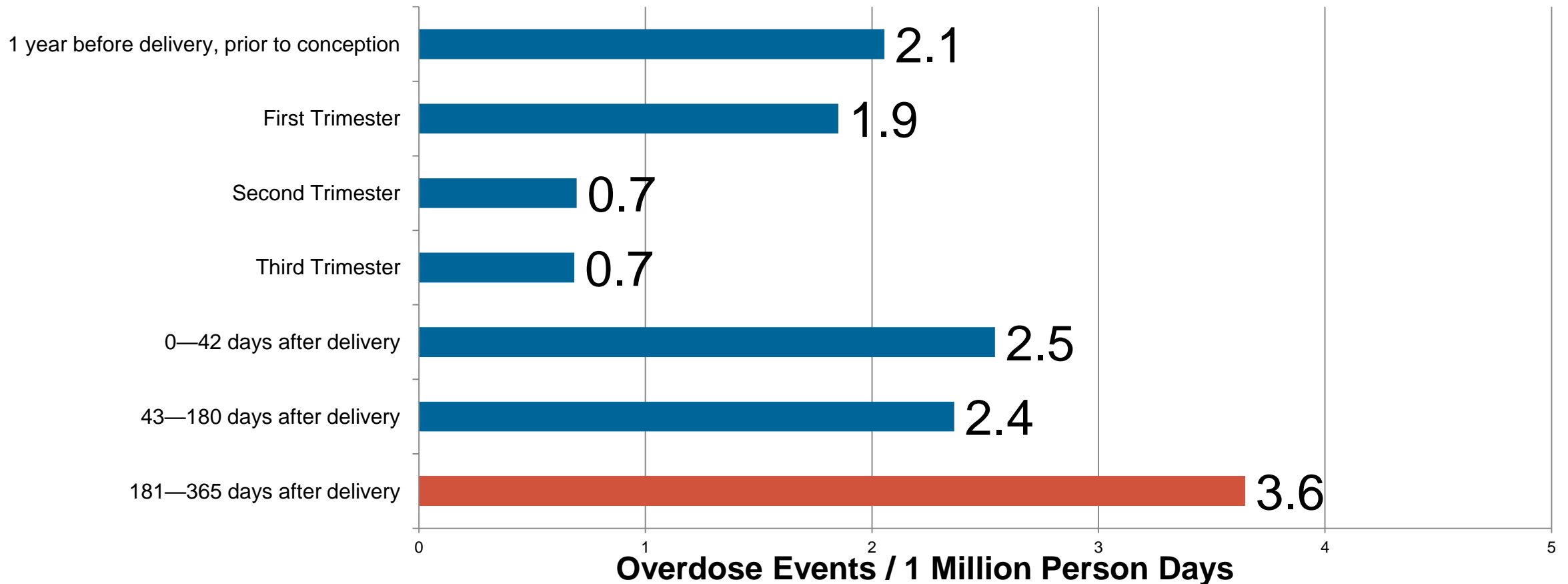
High Rates of Fatal Opioid Overdoses for Persons with Some Mental Health Diagnoses



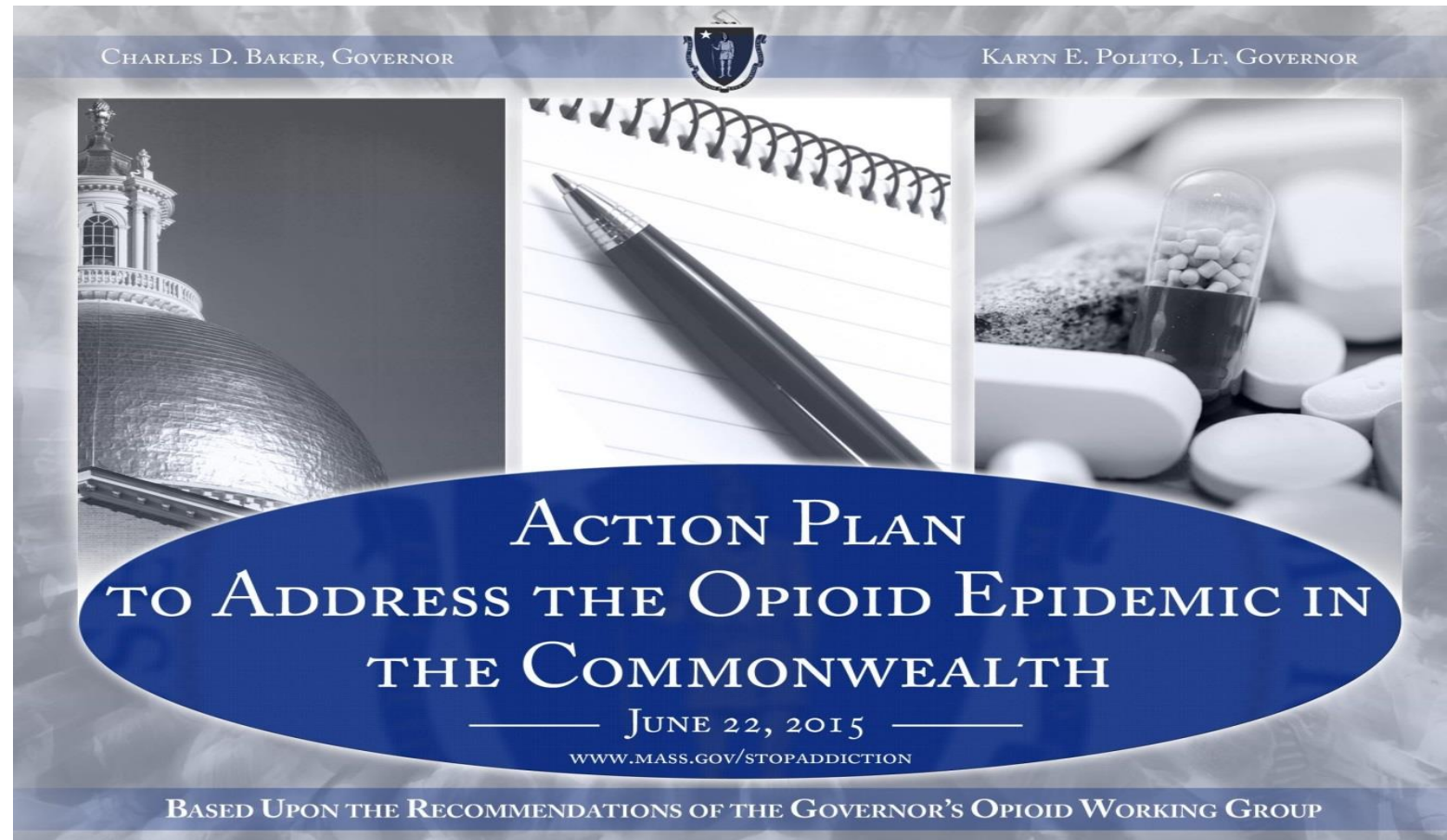
* MassHealth members only

Pregnant and Postpartum Risk

Rate of Opioid Overdose Events Increase Sharply After Delivery for OUD Mothers



Governor Baker's Opioid Working Group: Prevention Intervention Treatment Recovery



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