Social Determinants of Health

fallonhealth

Agenda

- MassHealth payment model for Medicaid and CHIP
- SDH-Social Determinants of Health
- SDH ICD-10 Codes Breakdown (Z55-Z65)
- Screening tool and Implementation
- Population Health

MassHealth Payment Model for Medicaid and CHIP

The Social Determinants of Health Model was developed by UMass for MassHealth to improve its approach to risk adjustment.

The model refines and enhances the State's previous DxCG (Diagnostic Cost Group) medical risk-based predictions, adding predictors for unstable housing, disability, serious mental illness and substance use disorders, plus a summary measure of "neighborhood stress" based upon residence in a census block group.

Medicaid & CHIP use a concurrent model with the following factors contributing to the risk score:

- DxCG-Diagnostic Cost Group
- RxGs-Prescription Medication (NDC)
- SDH-Social Determinants of Health
- “neighborhood stress” (NSS7)
- Other demographic factors (age, sex, race, etc.)

Prospective Vs. Concurrent

- **What is the difference between a prospective and concurrent model?**

  A prospective model predicts next year's costs for a person based on this year's data (e.g., age, sex, medical problems and SDH), while a concurrent model predicts costs measured in the same year that the costs are incurred.

- *Concurrent* models are built on a single year of data. They can capture costs for people who enter or leave the program within a single year. *Prospective* models do not, for example, describe the costs of newborns in their first year or the relationships between peoples' characteristics and costs in the year that they die.

Neighborhood Stress Score (NSS7)

The Neighborhood Stress Score (NSS7) is a composite measure of economic stress which summarizes 7 census variables that were identified in Massachusetts Medicaid data. The NSS7 is derived from addresses geocoded at the census block group level. It was developed as part of a project to incorporate social determinants of health (SDH) variables into risk adjustment for MassHealth's global payment models.

Census variables in the NSS7 include:

- % of families with incomes < 100% of FPL*
- % < 200% of FPL*
- % of adults who are unemployed
- % of households receiving public assistance
- % of households with no car
- % of households with children and a single parent
- % of people age 25 or older who have no HS degree

In order to calculate the NSS7, each member's current address is coded to the census block group level and includes the value of each of these census variables.

*Federal Poverty Level

Top Coding & Bottom Coding

Some costs are “top coded” because models that try to predict all costs (including “million-dollar babies” and catastrophic accidents) end up predicting poorly for the vast majority of people whose costs are more normal.

The top coding threshold was selected in examining data on all MassHealth members finding only about 1% of members had an annual cost above $125,000.

Risk scores can never be negative and all predictions are “bottom coded” at a value that translates into at least $15.

This is needed because some age-sex category coefficients (only among males, aged 18 and above) are negative. Without bottom coding, enrolling a 20-year-old man with no additional risk factors would lead to a loss of over $500.

Age-Sex Categories

The model includes 20 age-sex categories as predictors that recognize differences in the costs of infants vs. kids vs. adults.

FEMALE	MALE
0-1	0-1
2-5	2-5
6-12	6-12
13-17	13-17
18-24	18-24
25-34	25-34
35-44	35-44
45-54	45-54
55-59	55-59
60+	60+

SDH-Social Determinants of Health

Social determinants of health are conditions in the environments in which people are born, live, learn, work and play.

Social Determinants of Health (SDOH)

Why Coding Beyond the Body Matters

- Up to 80% of patients' health is determined by Social Determinants of Health (SDOH) according to a 2014 study by the Robert Wood Johnson Foundation.
- With the need for personalized care and ability to track social needs, we have an opportunity to care for patients' bodies and beyond.
- Collaboration of data to providers, hospitals, and health plans through medical records and insurance claims will only serve beneficial to our patients and their care.

Social Determinants of Health Defined

- Education and literacy
- Employment
- Social Support
- Housing
- Adequate Food & Water
- Occupational Exposures
- Health Behaviors
- Transportation Needs
- Violence Past or Present

Valid Reporters of Social Determinants of Health

- Social Workers
- RN, LPN
- Community Health Workers
- Medical Assistants
- Case and Discharge Managers
- Patient Self Reports

Engaging in conversation around the many different factors which shape our health can be a complicated process.

The social determinants of health have long been well-established in academic circles, and a subject of considerable study. At the same time, it has also been challenging to translate the concept in a way that effectively communicates how factors such as education, income and housing affect our health, and why our nation overall is not as healthy as it could be.

SIX WAYS TO TALK ABOUT SOCIAL DETERMINANTS OF HEALTH:

Our hope in this research was to find a tidy proxy that could replace "the social determinants of health" as the leading descriptor for this area of work. While our testing showed that this phrase doesn't work for any of our audiences, we still don't have that neat replacement. But what you'll find here is a list of phrases that—in context—helped people understand the concept more clearly. These are the precise phrases that we tested and that scored well.

1	Health starts—long before illness—in our homes, schools and jobs.
2	All Americans should have the opportunity to make the choices that allow them to live a long, healthy life, regardless of their income, education or ethnic background.
3	Your neighborhood or job shouldn't be hazardous to your health.
4	Your opportunity for health starts long before you need medical care.
5	Health begins where we live, learn, work and play.
6	The opportunity for health begins in our families, neighborhoods, schools and jobs.

WHY THESE WORK:

- The proxy statements use colloquial, values-driven language and relatable lifestyle references that engage audiences.
- These statements all focus on the solution versus the problem.
- Some of the statements implicitly acknowledge the notion of personal responsibility.

SEVEN LESSONS:

1

Traditional phrasing of social determinant language consistently tested poorly in every phase of research. Phrases like "social determinants of health" and "social factors" failed to engage the audience, even when we added more context. However, the concept behind social determinants of health does resonate with our audiences, as evidenced by our pre- and post-testing of people's attitudes after their exposure to our messages.

2

Priming audiences about the connection with messages they already believe makes the concept more credible. Messages that incorporate the importance of available quality health care with the need to address the social factors that affect health were more convincing than those that did not discuss medical care at all. **When messages are presented in colloquial, values-driven, emotionally compelling language, they are more effective.** Academic language, including "social determinants," did not resonate with audiences the way language like "health starts in our homes, schools and communities" did.

3

Use one strong and compelling fact—a surprising point that arouses interest, attention and emotion—for maximum impact. Loading messages down with more than one or two facts tends to depress responses to them.

4

Identify the problem, but offer potential solutions. Respondents, particularly opinion leaders, prefer messages that include some kind of direction—either an example of the kind of action that would address the problem or a set of principles that can guide us to where we need to be.

5

Incorporate the role of personal responsibility. The importance of all Americans having equal opportunity to make choices that lead to good health resonated with participants across the political spectrum. Incorporating this point made respondents more receptive to the idea that society also has a role to play in ensuring that healthy choices are universally available.

6

Mix traditionally conservative values with traditionally progressive values. Every phase of research showed that while some phrasing appealed to one political perspective over another, progressives had a tendency to be more open to conservative frames. Generally, however, we need to be aware of these different worldviews and communicate using language that puts us on common ground. For example, combining the notion of personal responsibility, which is wholly embraced by conservatives with a message about opportunities, language that also appeals to progressives, will appeal to a broader audience.

7

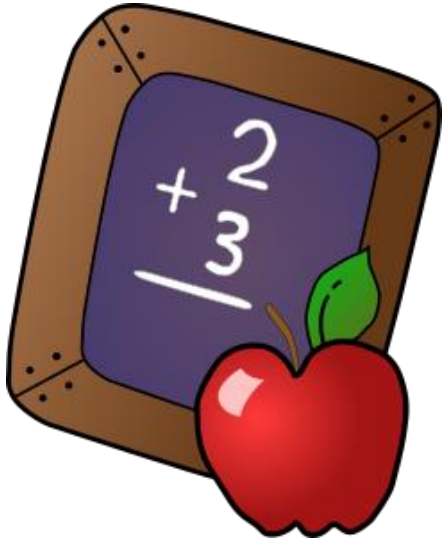
Focus broadly on how social determinants affect all Americans (versus a specific ethnic group or socioeconomic class). This research showed that Americans believe in equal opportunity to health, but describing actual disparities consistently evokes negative reactions. Messages that described disparities based on race or ethnicity fared poorly with every audience except Black respondents. Furthermore, some focus group participants expressed concern that focusing on one ethnic group reinforced negative racial stereotypes.

SDH ICD-10 Codes Breakdown (Z55-Z65)

Persons with potential health hazards related to socioeconomic and psychosocial circumstances

Z55	Problems related to education and literacy
Z56	Problems related to employment and unemployment
Z57	Occupational exposure to risk factors
Z59	Problems related to housing and economic circumstances
Z60	Problems related to social environment
Z62	Problems related to upbringing
Z63	Other problems related to primary support group, including family circumstances
Z64	Problems related to certain psychosocial circumstances
Z65	Problems related to other psychosocial circumstances

Z55 Problems related to education and literacy



Z55.0	Illiteracy and low-level literacy
Z55.1	Schooling unavailable and unattainable
Z55.3	Underachievement in school
Z55.4	Education Maladjustment and discord with teachers and classmates
Z55.8	Other problems related to education and literacy
Z55.9	Problems related to education and literacy, unspecified

Z56 Problems related to employment and unemployment

Z56.0 Unemployment, unspecified

Z56.1 Change of job

Z56.2 Threat of job loss

Z56.3 Stressful work schedule

Z56.4 Discord with boss and work mates

Z57 Occupational exposure to risk factors

Z57.0	Occupational exposure to noise
Z57.1	Occupational exposure to radiation
Z57.2	Occupational exposure to dust
Z57.31	Occupational exposure to environmental tobacco smoke
Z57.39	Occupational exposure to other air contaminants
Z57.4	Occupational exposure to toxic agents in agriculture
Z57.5	Occupational exposure to toxic agents in other industries
Z57.6	Occupational exposure to extreme temperatures
Z57.7	Occupational exposure to vibration
Z57.8	Occupational exposure to other risk factors
Z57.9	Occupational exposure to unspecified risk factors

Z59 Problems related to related to housing and economic circumstances

Z59.0	Homelessness
Z59.1	Inadequate housing
Z59.2	Discord with neighbors
Z59.3	Problems related to living in residential institution
Z59.4	Lack of adequate food and safe drinking water
Z59.5	Extreme poverty
Z59.6	Low income
Z59.7	Insufficient social insurance and welfare support
Z59.8	Other problems related to housing and economic circumstances
Z59.9	Problems related to housing and economic circumstances, unspecified

Z60 Problems related to social environment

Z60.0	Problems of adjustment to life-cycle transition
Z60.2	Problems related to living alone
Z60.3	Acculturation difficulty
Z60.4	Social exclusion and rejection
Z60.5	Target of (perceived) adverse discrimination and persecution
Z60.8	Other problems related to social environment
Z60.9	Problems related to social environment, unspecified

Z62-Problems related to upbringing

Z62.0	Inadequate parental supervision and control
Z62.1	Parental overprotection
Z62.21	Child in welfare custody
Z62.22	Institutional upbringing
Z62.29	Other upbringing away from parents
Z62.3	Hostility towards and scapegoating of child
Z62.6	Inappropriate (excessive) parental pressure

Z62.8_ Other specified problems related to upbringing

Z62.810	Personal history of physical and sexual abuse in childhood
Z62.811	Personal history of psychological abuse in childhood
Z62.812	Personal history of neglect in childhood
Z62.813	Personal history of forced labor or sexual exploitation in childhood
Z62.819	Personal history of unspecified abuse in childhood
Z62.820	Parent-biological child conflict
Z62.821	Parent-adopted child conflict
Z62.822	Parent-foster child conflict
Z62.890	Parent-child estrangement
Z62.891	Sibling rivalry
Z62.898	Other specified problems related to upbringing

Z63 Other problems related to primary support group, including family circumstances

Z63.0	Problems in relationship with spouse or partner
Z63.1	Problems in relationship with in-laws
Z63.31	Absence of family member due to military deployment
Z63.32	Other absence of family member
Z63.4	Disappearance and death of a family member (assumed death of family member/bereavement)
Z63.5	Disruption of family by separation of divorce
Z63.6	Dependent relative needing care at home
Z63.71	Stress on family due to return of family member from military deployment
Z63.72	Alcoholism and drug addiction in family
Z63.79	Other stressful life events affecting family and household
Z63.8	Other specified problems related to primary support group
Z63.9	Problems related to primary support group

Z64 Problems related to certain psychosocial circumstances

Z64.0 Problems related to unwanted pregnancy

Z64.1 Problems related to multiparity

Z64.4 Discord with counselors

Z65 Problems related to other psychosocial circumstances

Z65.0	Conviction in civil and criminal proceedings without imprisonment
Z65.1	Imprisonment and other incarceration
Z65.2	Problems related to release from prison
Z65.3	Problems related to other legal circumstances
Z65.4	Victim of crime and terrorism
Z65.5	Exposure to disaster, war and other hostilities
Z65.6	Other specified problems related to psychosocial circumstances
Z65.9	Problems related to unspecified psychosocial circumstances

Screening Tool and Implementation

Sample NEQCA SDoH Screening Tool

NEQCA
New England Quality Care Alliance
Affiliated with Tufts Medical Center

PRACTICE NAME

This questionnaire helps your doctor and his/her team understand your needs and provide information on resources available to you.
Please place a checkmark (✓) with the appropriate answer.

Name/Birthdate: **Date of Visit:**

Best day(s)/time(s) to call:

HOUSING *What is your housing situation today?*

- ☐ I **have** housing
- ☐ I **have** housing today, but I am worried about losing housing in the future
- ☐ I **do not have** housing (I am staying with others, in a hotel, in a shelter, living outside on the street, on a beach, in a car, abandoned building, bus or train station, or in a park)
- ☐ I choose not to answer this question

FOOD *Within the past 12 months, the food (you/we) bought just didn't last and (you/we) didn't have money to get more.*

- ☐ **Never** true
- ☐ **Sometimes** true
- ☐ **Often** true
- ☐ I choose not to answer this question

UTILITIES *In the last 12 months have the electric, gas, oil, or water company threatened to shut off services in your home?*

- ☐ No
- ☐ Yes
- ☐ Already shut off
- ☐ I choose not to answer this question

NEQCA
New England Quality Care Alliance
Affiliated with Tufts Medical Center

PRACTICE NAME

SAFETY *Do you feel physically and emotionally safe where you currently live?*

- ☐ Yes
- ☐ No
- ☐ I choose not to answer this question

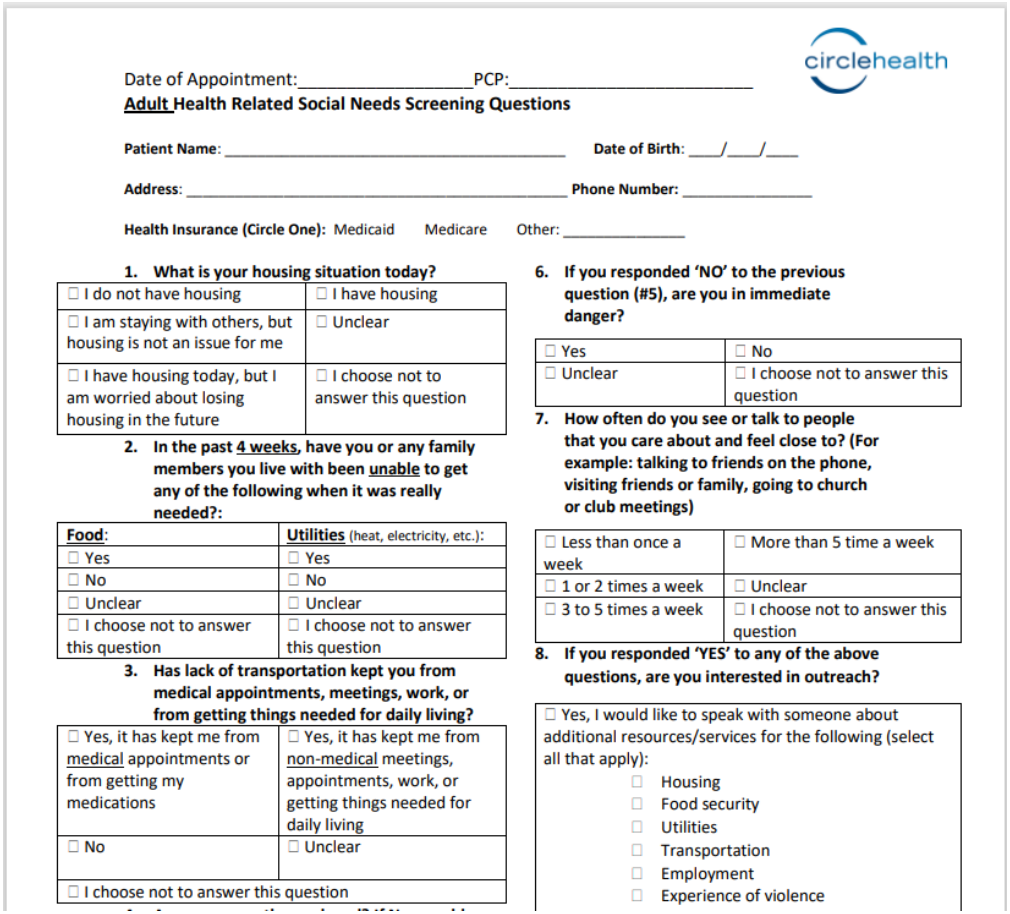
SOCIAL SUPPORT *Do you ever feel alone or isolated from friends, family or anyone else in your life?*

- ☐ No, I do not feel alone or isolated
- ☐ *Yes, I do feel alone or isolated (How often? SELECT ONE)*
  - ☐ Rarely
  - ☐ Sometimes
  - ☐ Often
  - ☐ Always
- ☐ Unclear
- ☐ I choose not to answer this question

Would you like help with anything above?

- ☐ No
- ☐ Yes

Sample Circle Health Screening Tool



circlehealth

Date of Appointment:_____PCP:_____

Adult Health Related Social Needs Screening Questions

Patient Name: _____ **Date of Birth:** ___/___/___

Address: _____ **Phone Number:** _____

Health Insurance (Circle One): Medicaid Medicare Other: _____

1. What is your housing situation today?

☐ I do not have housing	☐ I have housing
☐ I am staying with others, but housing is not an issue for me	☐ Unclear
☐ I have housing today, but I am worried about losing housing in the future	☐ I choose not to answer this question

2. In the past 4 weeks, have you or any family members you live with been unable to get any of the following when it was really needed?:

Food:	**Utilities** (heat, electricity, etc.):
☐ Yes	☐ Yes
☐ No	☐ No
☐ Unclear	☐ Unclear
☐ I choose not to answer this question	☐ I choose not to answer this question

3. Has lack of transportation kept you from medical appointments, meetings, work, or from getting things needed for daily living?

☐ Yes, it has kept me from medical appointments or from getting my medications	☐ Yes, it has kept me from non-medical meetings, appointments, work, or getting things needed for daily living
☐ No	☐ Unclear
☐ I choose not to answer this question	

6. If you responded 'NO' to the previous question (#5), are you in immediate danger?

☐ Yes	☐ No
☐ Unclear	☐ I choose not to answer this question

7. How often do you see or talk to people that you care about and feel close to? (For example: talking to friends on the phone, visiting friends or family, going to church or club meetings)

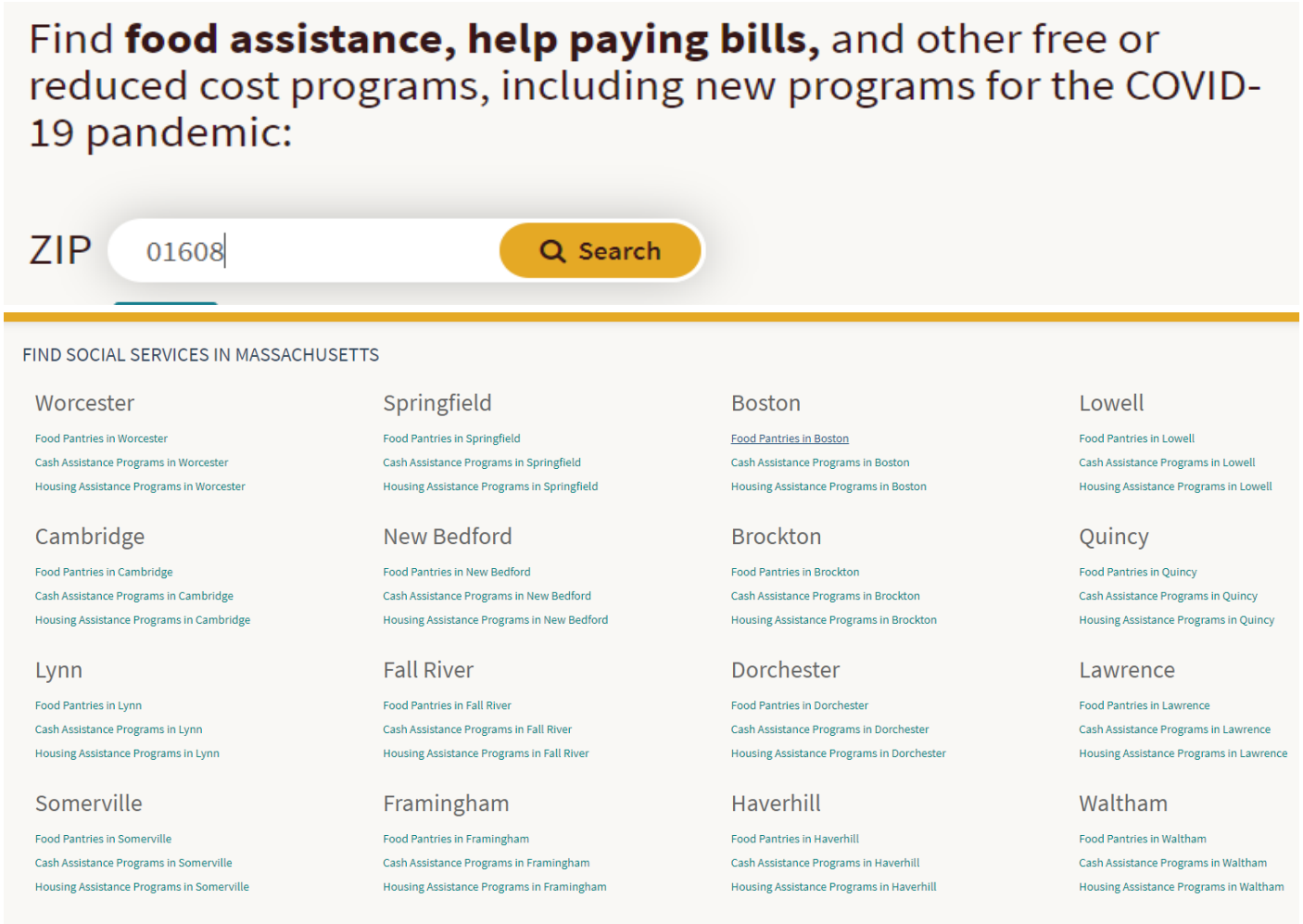
☐ Less than once a week	☐ More than 5 time a week
☐ 1 or 2 times a week	☐ Unclear
☐ 3 to 5 times a week	☐ I choose not to answer this question

8. If you responded 'YES' to any of the above questions, are you interested in outreach?

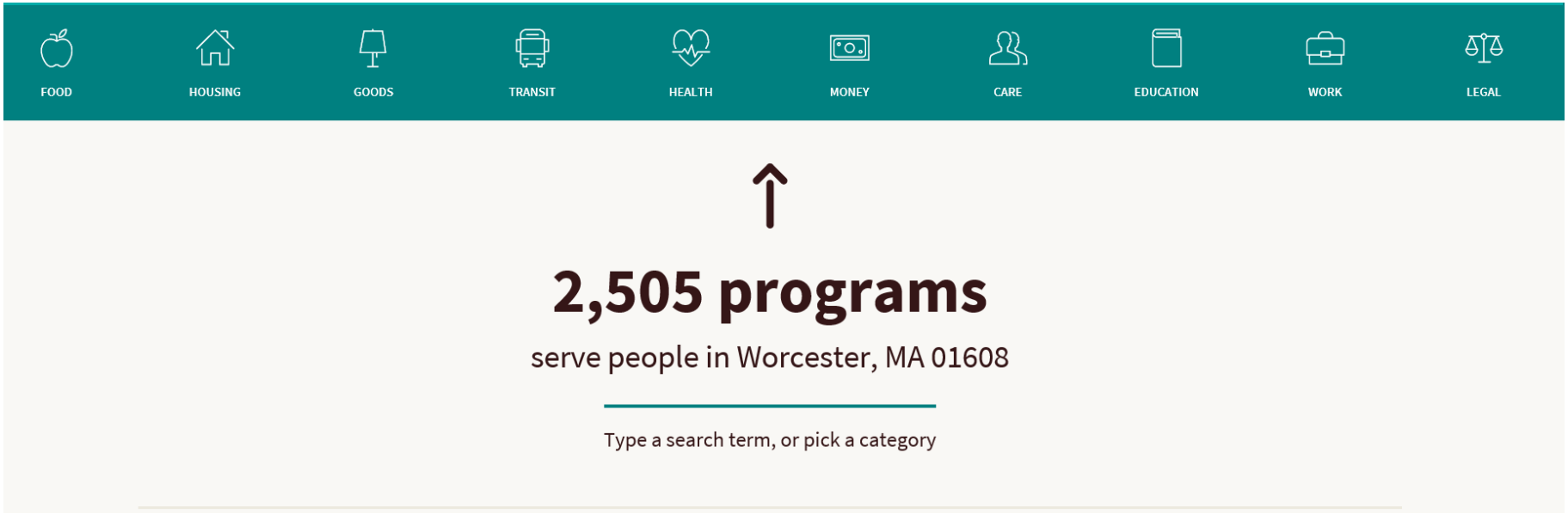
☐ Yes, I would like to speak with someone about additional resources/services for the following (select all that apply):

- ☐ Housing
- ☐ Food security
- ☐ Utilities
- ☐ Transportation
- ☐ Employment
- ☐ Experience of violence

https://www.findhelp.org/find-social-services/massachusetts



FOOD-HOUSING-GOODS-TRANSIT-HEALTH-MONEY-CARE-EDUCATION-WORK-LEGAL



Findhelp.org

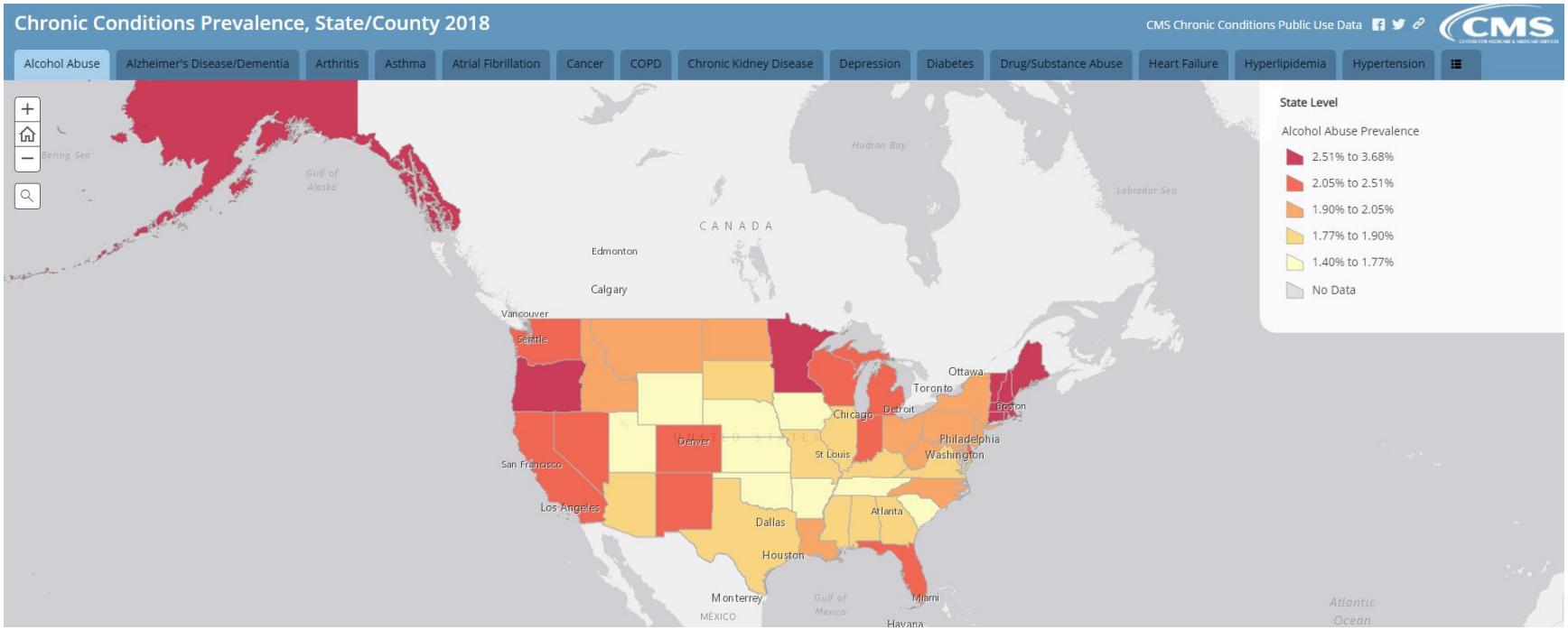
Population Health

Finding the Target Population for Intervention

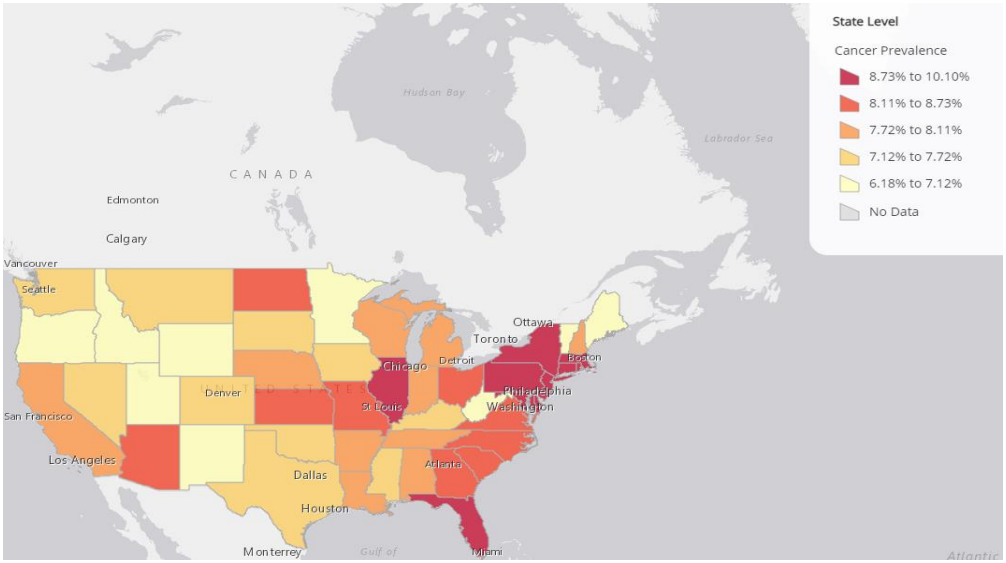
- Assess the health status of the population
- Identify the group of individuals at high risk of future utilization or poor health outcomes
- Focus on the subset of people that case managers believe they can impact through a defined intervention

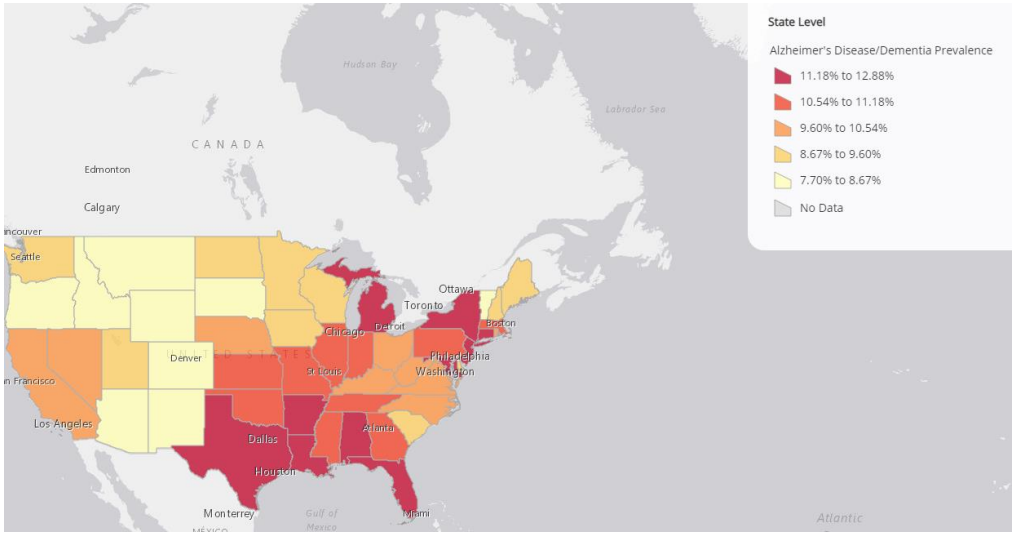
CMS Interactive Atlas of Chronic Conditions

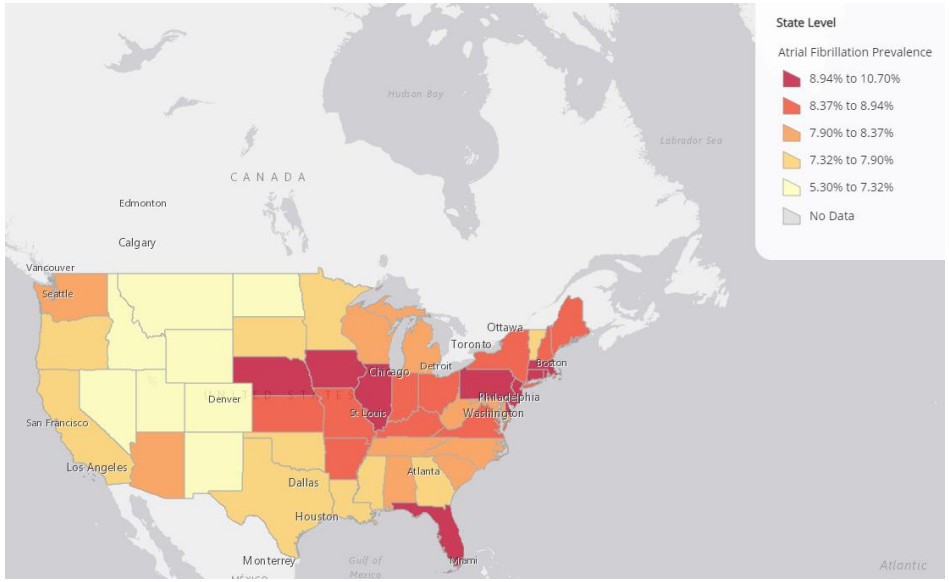
https://cms-oeda.maps.arcgis.com/apps/MapSeries/index.html?appid=062934f815eb412182b3d324054ea6f0

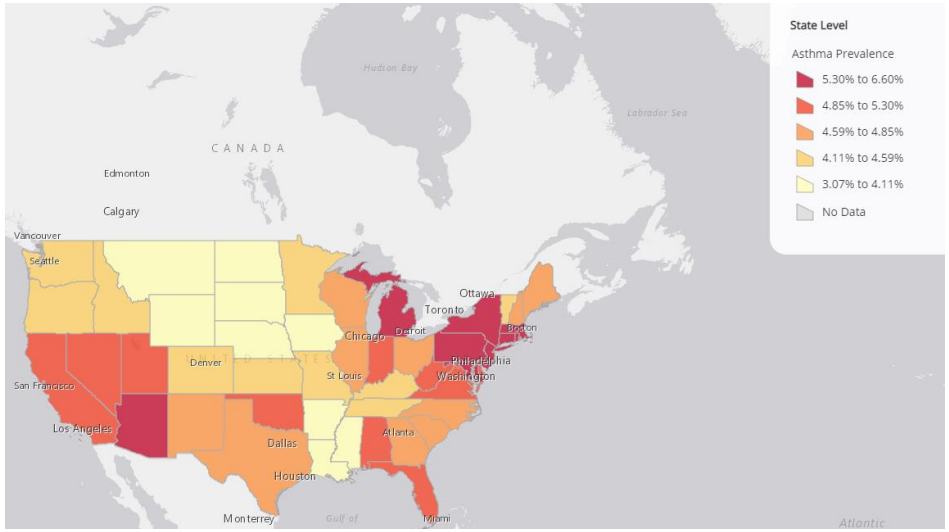


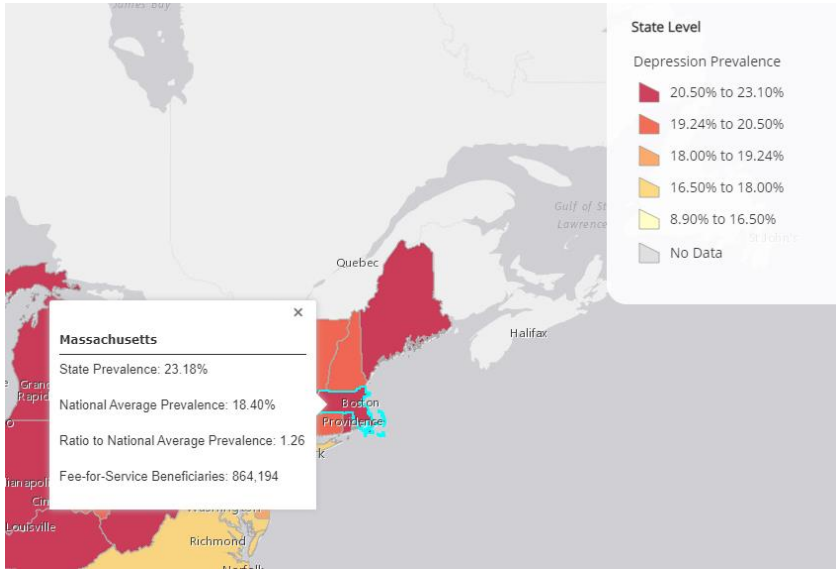
Massachusetts CMS Data

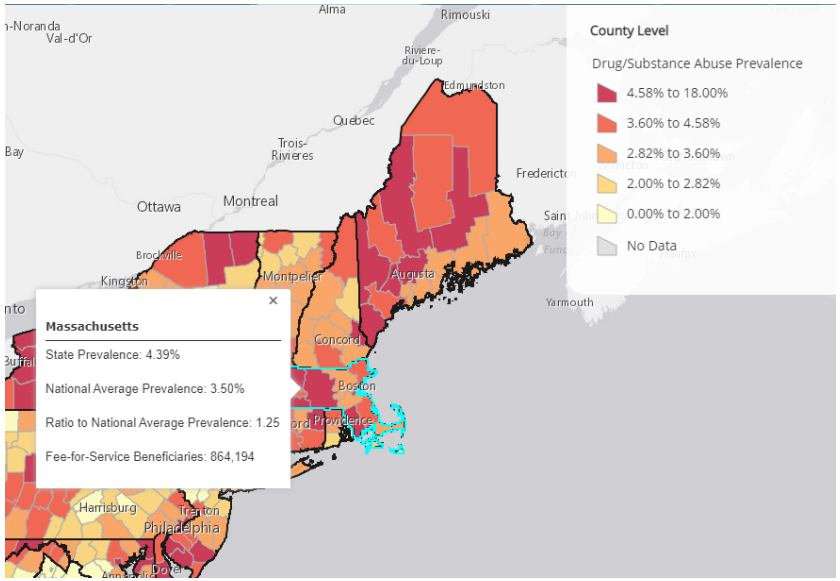


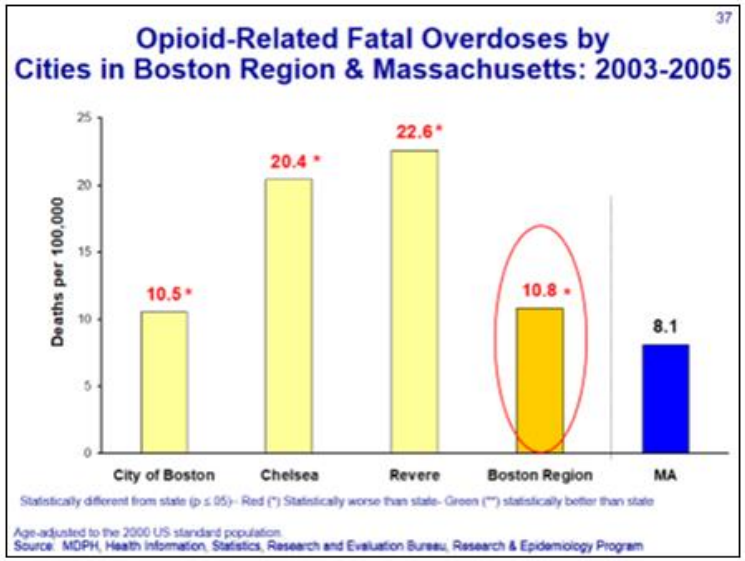


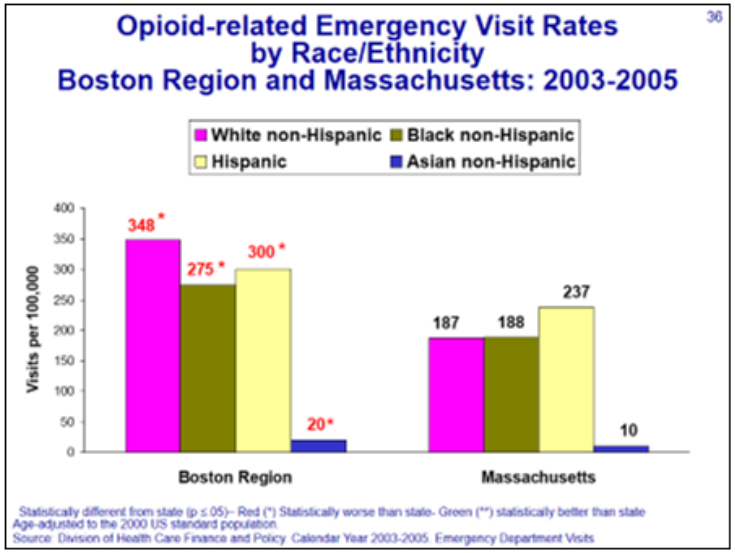

State Level
Atrial Fibrillation Prevalence
8.94% to 10.70%
8.37% to 8.94%
7.90% to 8.37%
7.32% to 7.90%
5.30% to 7.32%
No Data
Hudson Bay
Labrador Sea
CANADA
Edmonton
Calgary
Vancouver
Seattle
Ottawa
Toronto
Chicago
Detroit
Boston
Denver
Philadelphia
Washington
St Louis
San Francisco
Los Angeles
Dallas
Atlanta
Houston
Monterrey
Gulf of Mexico
Miami
Atlantic


State Level
Asthma Prevalence
5.30% to 6.60%
4.85% to 5.30%
4.59% to 4.85%
4.11% to 4.59%
3.07% to 4.11%
No Data
Hudson Bay
Labrador Sea
CANADA
Edmonton
Calgary
Vancouver
Seattle
Ottawa
Toronto
Chicago
Detroit
Boston
Denver
Philadelphia
Washington
St Louis
San Francisco
Los Angeles
Dallas
Atlanta
Houston
Monterrey
Gulf of
Miami
Atlantic


State Level
Depression Prevalence
20.50% to 23.10%
19.24% to 20.50%
18.00% to 19.24%
16.50% to 18.00%
8.90% to 16.50%
No Data
Massachusetts
State Prevalence: 23.18%
National Average Prevalence: 18.40%
Ratio to National Average Prevalence: 1.26
Fee-for-Service Beneficiaries: 864,194
Quebec
Halifax
Boston
Providence
Louisville
Richmond


County Level
Drug/Substance Abuse Prevalence
4.58% to 18.00%
3.60% to 4.58%
2.82% to 3.60%
2.00% to 2.82%
0.00% to 2.00%
No Data
Massachusetts
State Prevalence: 4.39%
National Average Prevalence: 3.50%
Ratio to National Average Prevalence: 1.25
Fee-for-Service Beneficiaries: 864,194
Alma
Rimouski
Val-d'Or
Riviere-du-Loup
Edmundston
Quebec
Trois-Rivieres
Ottawa
Montreal
Fredericton
Brockville
Kingston
Montpelier
Augusta
Yarmouth
Concord
Boston
Providence
Harrisburg
Trenton
Philadelphia

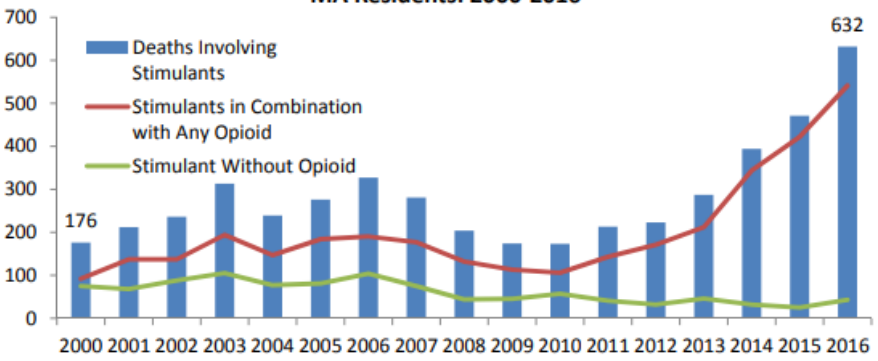

37
Opioid-Related Fatal Overdoses by
Cities in Boston Region & Massachusetts: 2003-2005
Deaths per 100,000
25
20
15
10
5
0
10.5 *
20.4 *
22.6 *
10.8 *
8.1
City of Boston
Chelsea
Revere
Boston Region
MA
Statistically different from state (p ≤ 05)- Red (*) Statistically worse than state- Green (**) statistically better than state
Age-adjusted to the 2000 US standard population.
Source: MDPH, Health Information, Statistics, Research and Evaluation Bureau, Research & Epidemiology Program


36
Opioid-related Emergency Visit Rates
by Race/Ethnicity
Boston Region and Massachusetts: 2003-2005
White non-Hispanic
Black non-Hispanic
Hispanic
Asian non-Hispanic
Visits per 100,000
400
350
300
250
200
150
100
50
0
348 *
275 *
300 *
20*
187
188
237
10
Boston Region
Massachusetts
Statistically different from state (p ≤ 05)- Red (*) Statistically worse than state- Green (**) statistically better than state
Age-adjusted to the 2000 US standard population.
Source: Division of Health Care Finance and Policy. Calendar Year 2003-2005. Emergency Department Visits

Stimulant Related Opioid Deaths

Key Finding #1: *Counts of deaths involving stimulants have increased 25% per year since 2010 and the majority of deaths involving stimulants also involve opioids. The count of deaths involving stimulants without opioids has declined by almost 7% per year since 2000.*

Figure 1: Count of Stimulant-Related Deaths
MA Residents: 2000-2016



Note: These deaths may include substances in addition to stimulants or opioids
Source: MDPH Registry of Vital Records and Statistics

Why is this important? While stimulant related deaths have been increasing since 2010, this increase is closely linked to the opioid overdose epidemic. These data suggest that interventions that address stimulant use alone will not be sufficient to reduce stimulant related deaths.

Key Finding #2: *The rate of overdose deaths involving stimulants and opioids is higher among males than females. The rate rose by 38% per year for males from 2011 to 2016 and by 30% per year from 2010-2016 for females.*

Obesity

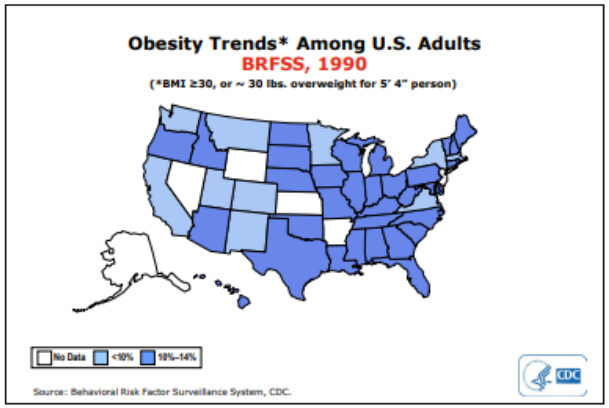


Figure 1. Obesity Trends Among US Adults: 1990 (CDC)

Twenty years later, obesity prevalence has increased dramatically. In 2010, all 50 states had obesity prevalence rates based on self-report of more than 20%, including 12 states that had prevalence rates equal to or greater than 30% (see Figure 2 below). [2]

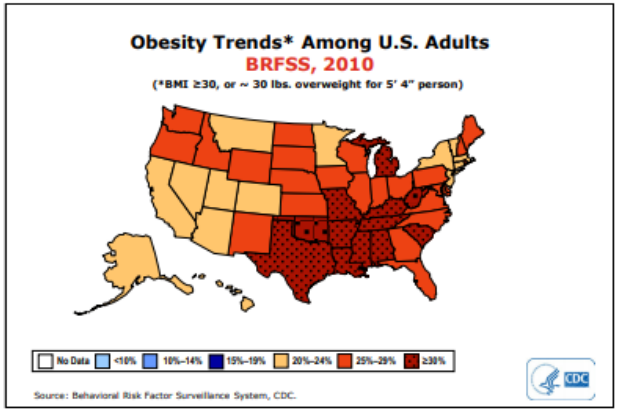
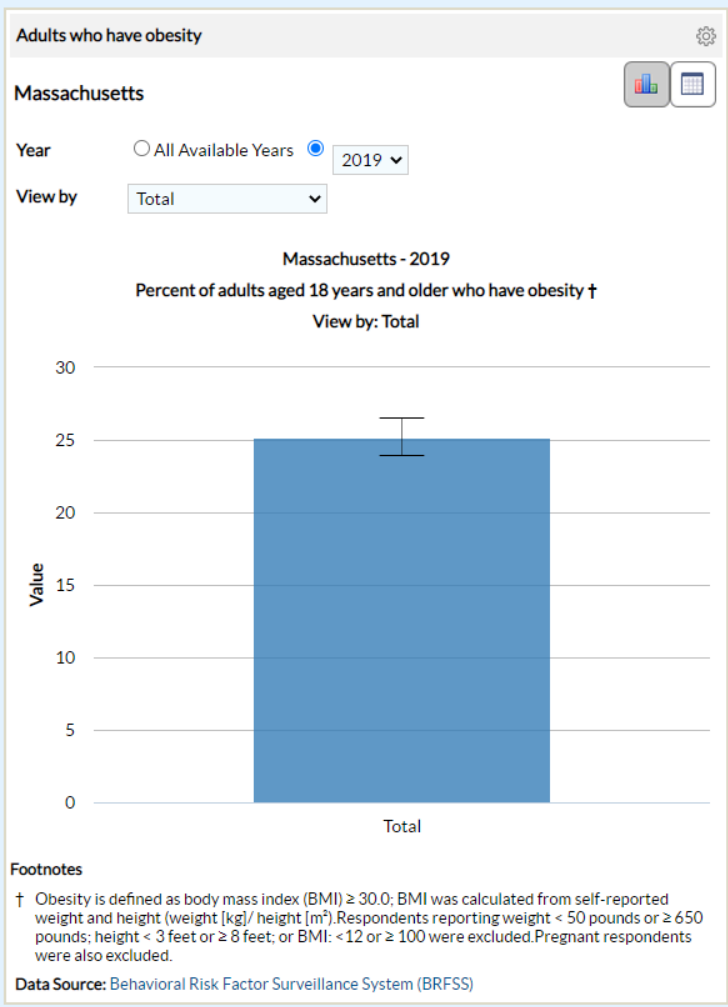
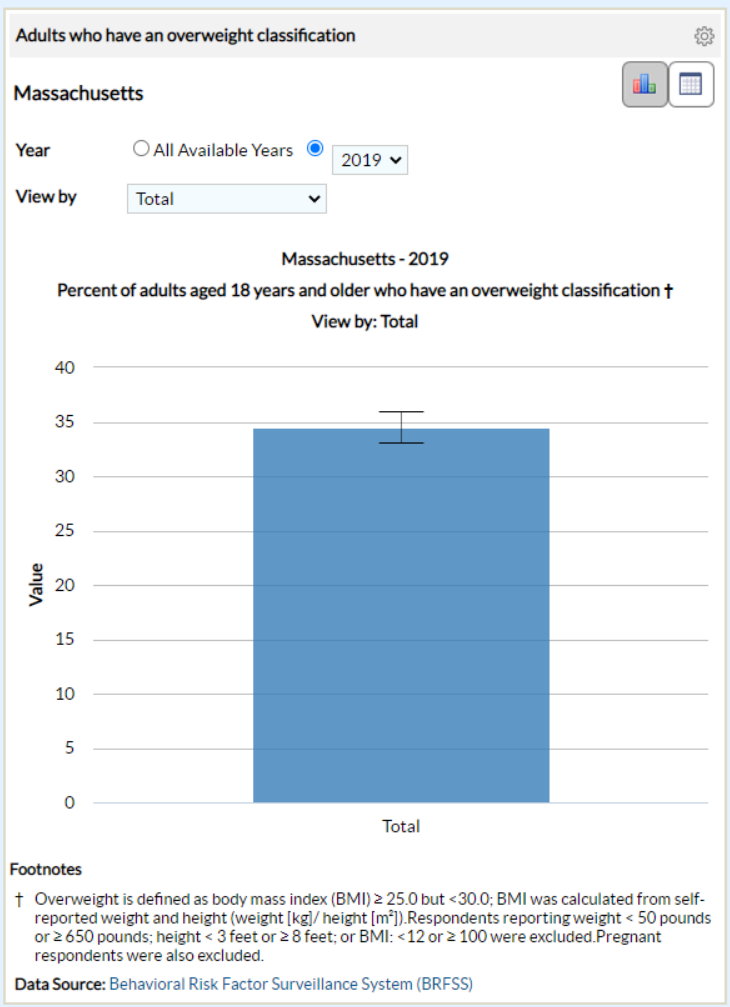


Figure 2. Obesity Trends Among US Adults: 2010 (CDC)

Massachusetts Adults Overweight or Obese by Percentage





***Be sure to address overweight, obese or morbidly obese AND BMI when a patient's weight is contributing negatively to their health status.**

Increased Risk due to Obesity

People who have obesity, compared to those with a normal or healthy weight, are at increased risk for many serious diseases and health conditions, including the following:[1,2,3]

- All-causes of death (mortality)
- High blood pressure (Hypertension)
- High LDL cholesterol, low HDL cholesterol, or high levels of triglycerides (Dyslipidemia)
- Type 2 diabetes
- Coronary heart disease
- Stroke
- Gallbladder disease
- Osteoarthritis (a breakdown of cartilage and bone within a joint)
- Sleep apnea and breathing problems
- Many types of cancer
- Low quality of life
- Mental illness such as clinical depression, anxiety, and other mental disorders[4,5]
- Body pain and difficulty with physical functioning[6]

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Questions?