

Moderator

Rachel Yalowich, Project Director, National Academy
for State Health Policy



Logistics for the Webinar

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Dial in: (866) 519-2796 Access Code: 725013
- Lines will not be open during this webinar.
- Comments are encouraged. Please use that chat box on the lower left corner of your screen.
- The chat feature is available, but will not be visible in full screen mode



DATA VISUALIZATION

JENNIFER LYONS

lyonsvisualiation@gmail.com

Why is data viz so important?

Take Action

Communicate Need

Make Change

Efficiency

Illuminate Findings

Funding

Data Driven Decisions





Access to space must be a national priority.

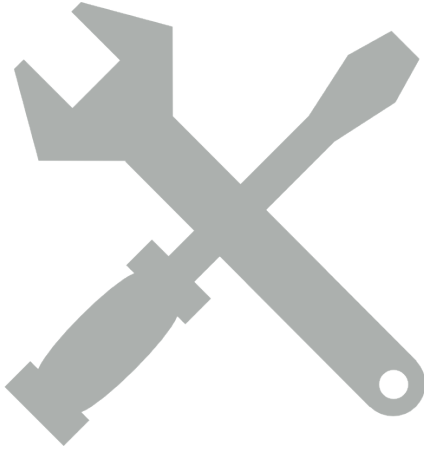
Access to space
must be a
national priority



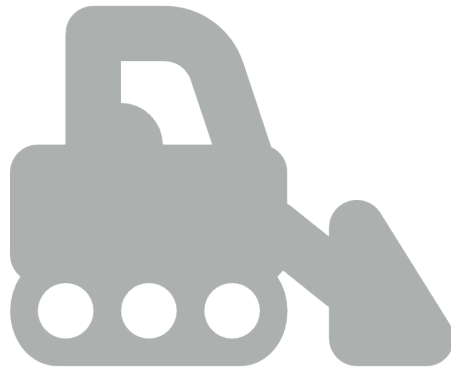
VISUALIZATION PROCESS

VISUALIZATION PROCESS

1. Build it



2. Break it down



3. Emphasize
your story

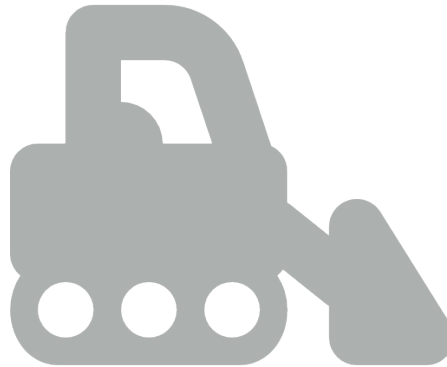


VISUALIZATION PROCESS

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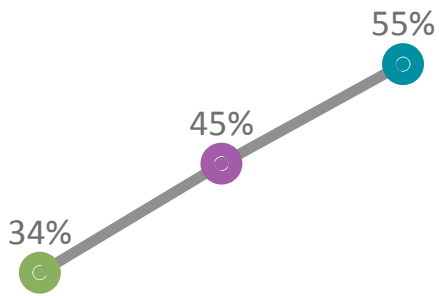
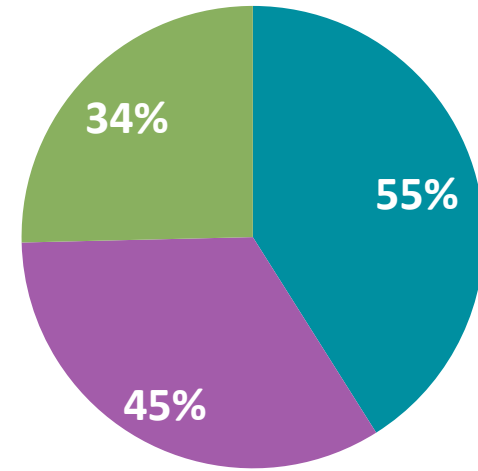
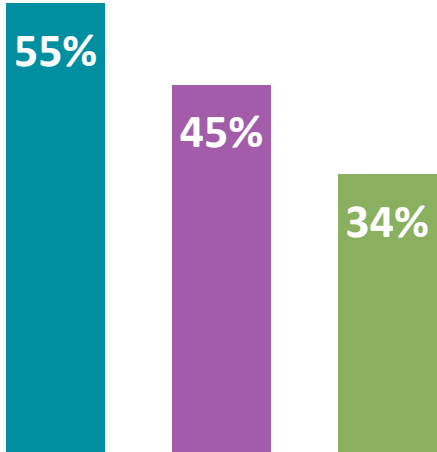


2. Break it down



**3. Emphasize
your story**





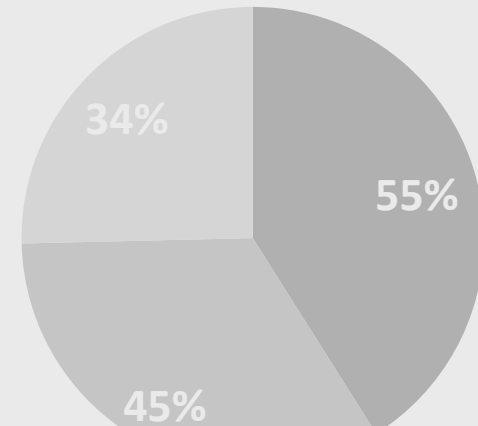
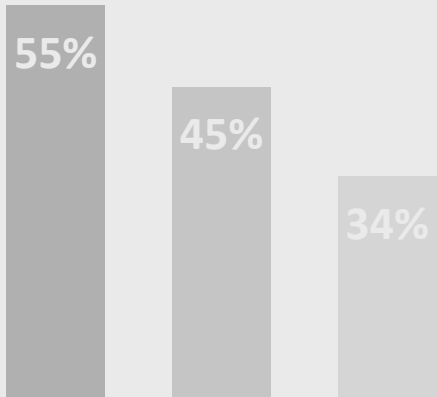
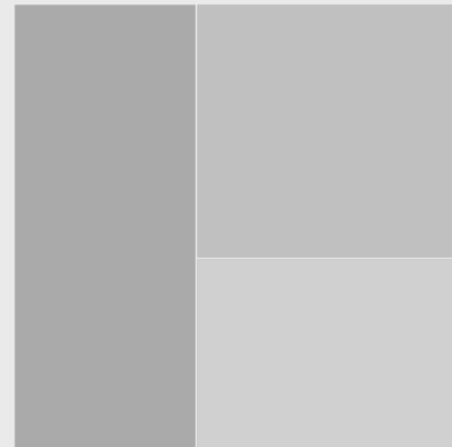
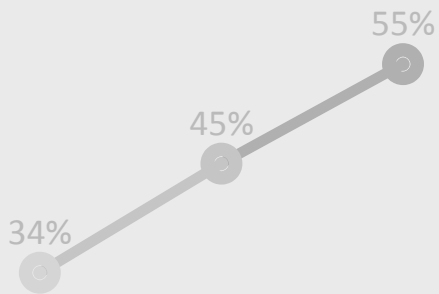
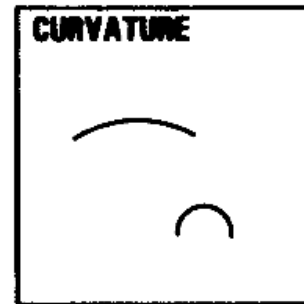
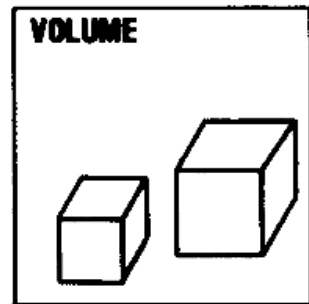
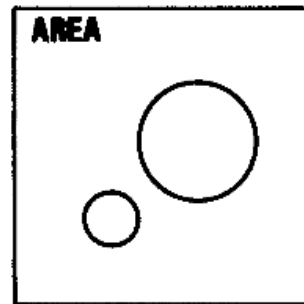
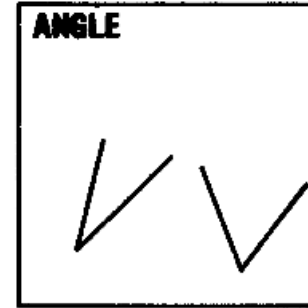
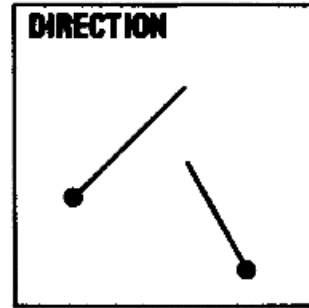
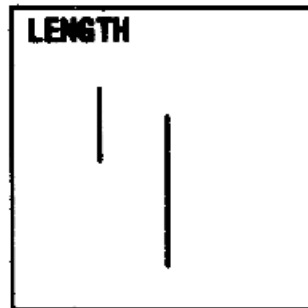
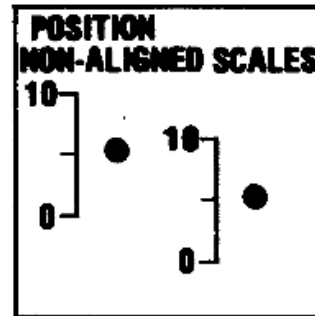
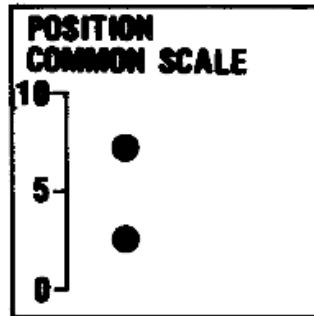


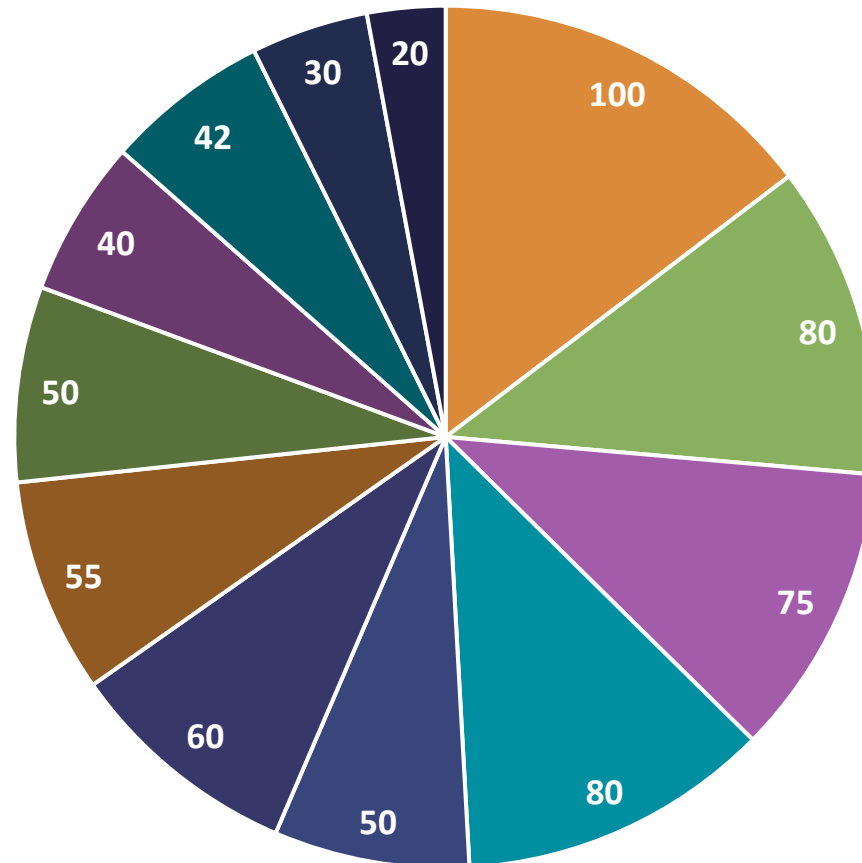
CHART FUNK?



CHOOSING THE RIGHT CHART

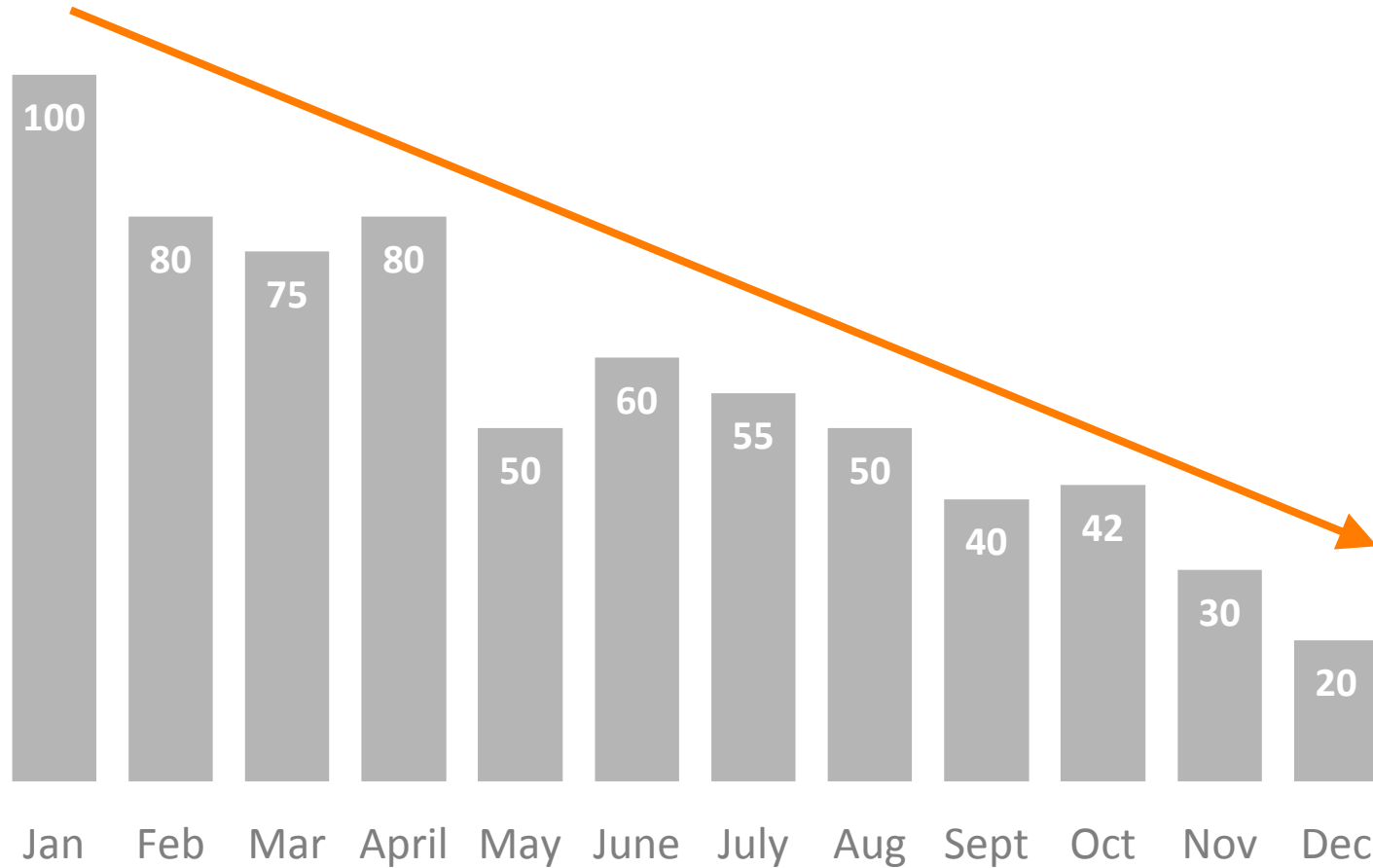


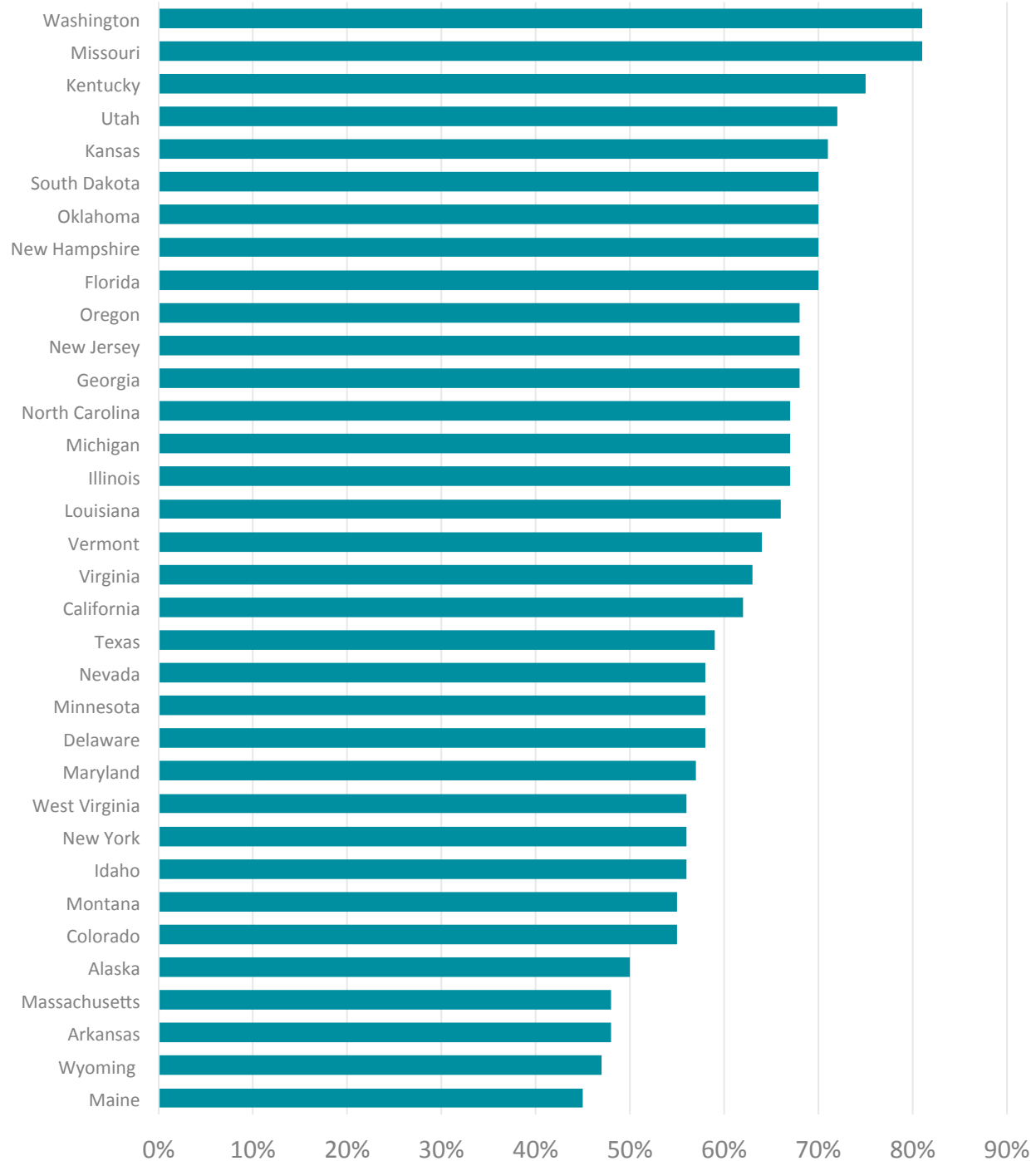
Over the course of the year, sales decreased.

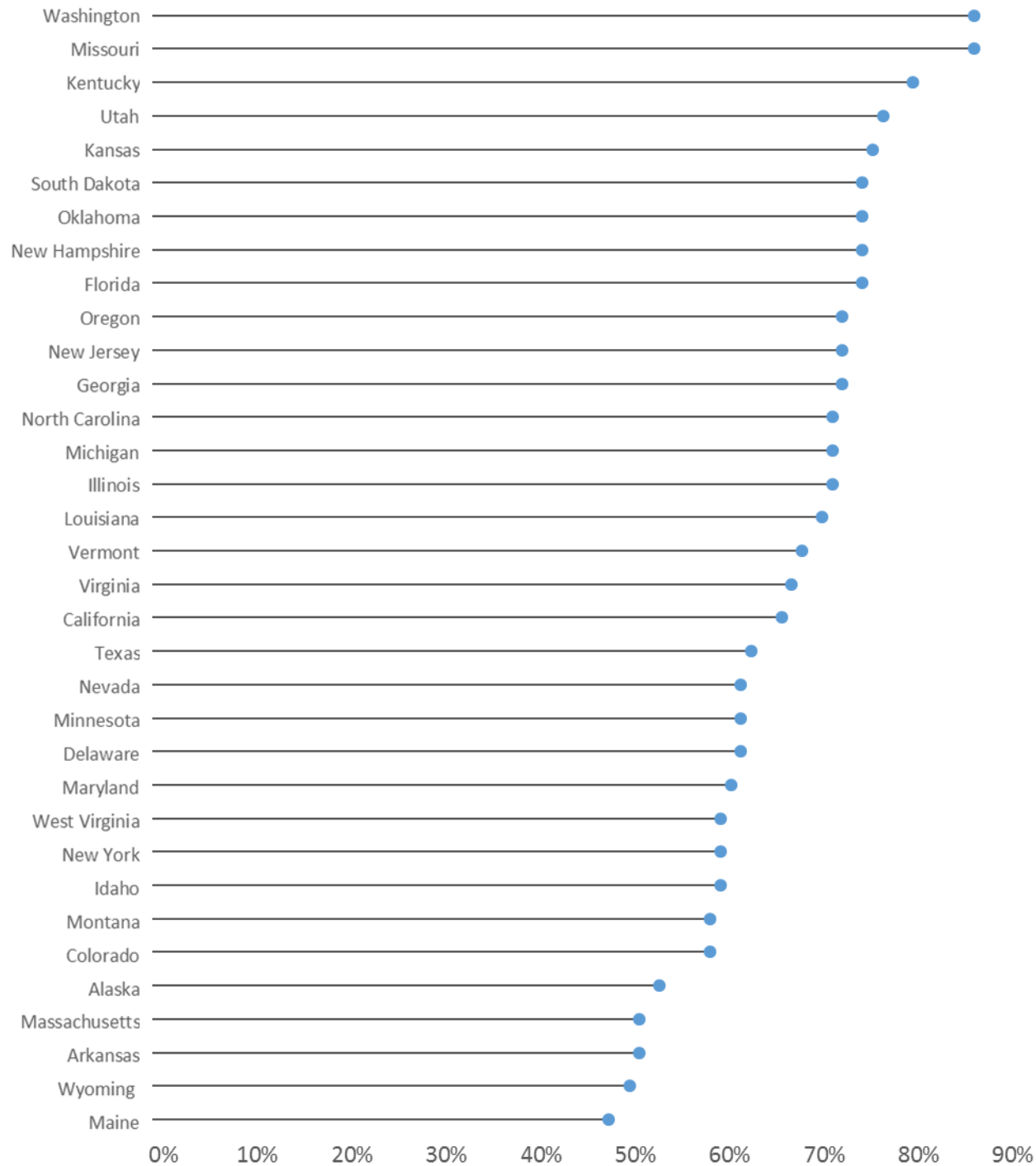


Jan Feb Mar April May June July Aug Sept Oct Nov Dec

Over the course of the year, sales **decreased**.







EMERY'S ESSENTIALS Chart Choosing Tool

ALL / SMALL MULTIPLES / COMPARING 2 OR MORE CATEGORIES / RANGES OR DISPERSION / PART TO WHOLE / DO-ABLE IN EXCEL / GEOGRAPHIC MAPS / RELATIONSHIPS / COLLAGES / QUALITATIVE / EXPLORATORY / CORRELATION / 1 POINT IN TIME / 2 POINTS IN TIME / 3+ POINTS IN TIME

	2	3	4	5	6	7	8	9	10		
Variable 1	-0.04	0.24	-0.33	0.00	0.19	0.20	0.11	0.03	-0.09		
Variable 2	-	0.19	0.02	0.10	0.08	-0.14	0.10	0.07	0.41		
Variable 3			-0.61	0.25	0.15	0.24	0.15	0.28	0.03		
Variable 4				-	-0.08	-0.17	-0.32	-0.09	-0.14	-0.22	
Variable 5					0.23	0.24	0.27	0.14	-0.16		
Variable 6						-	0.49	0.38	0.53	0.25	
Variable 7								0.48	0.47	0.29	
Variable 8									0.32	0.08	
Variable 9										-	0.21

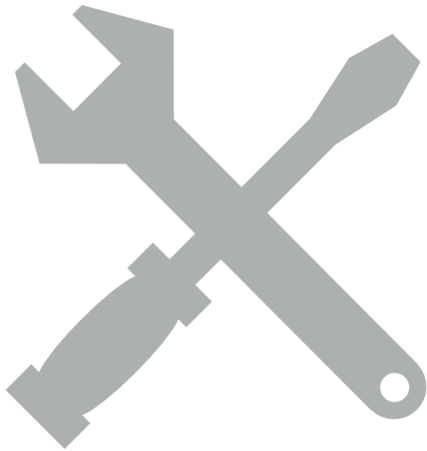
Heat Tables



Social Network Map

VISUALIZATION PROCESS

1. Build it



2. Break it down

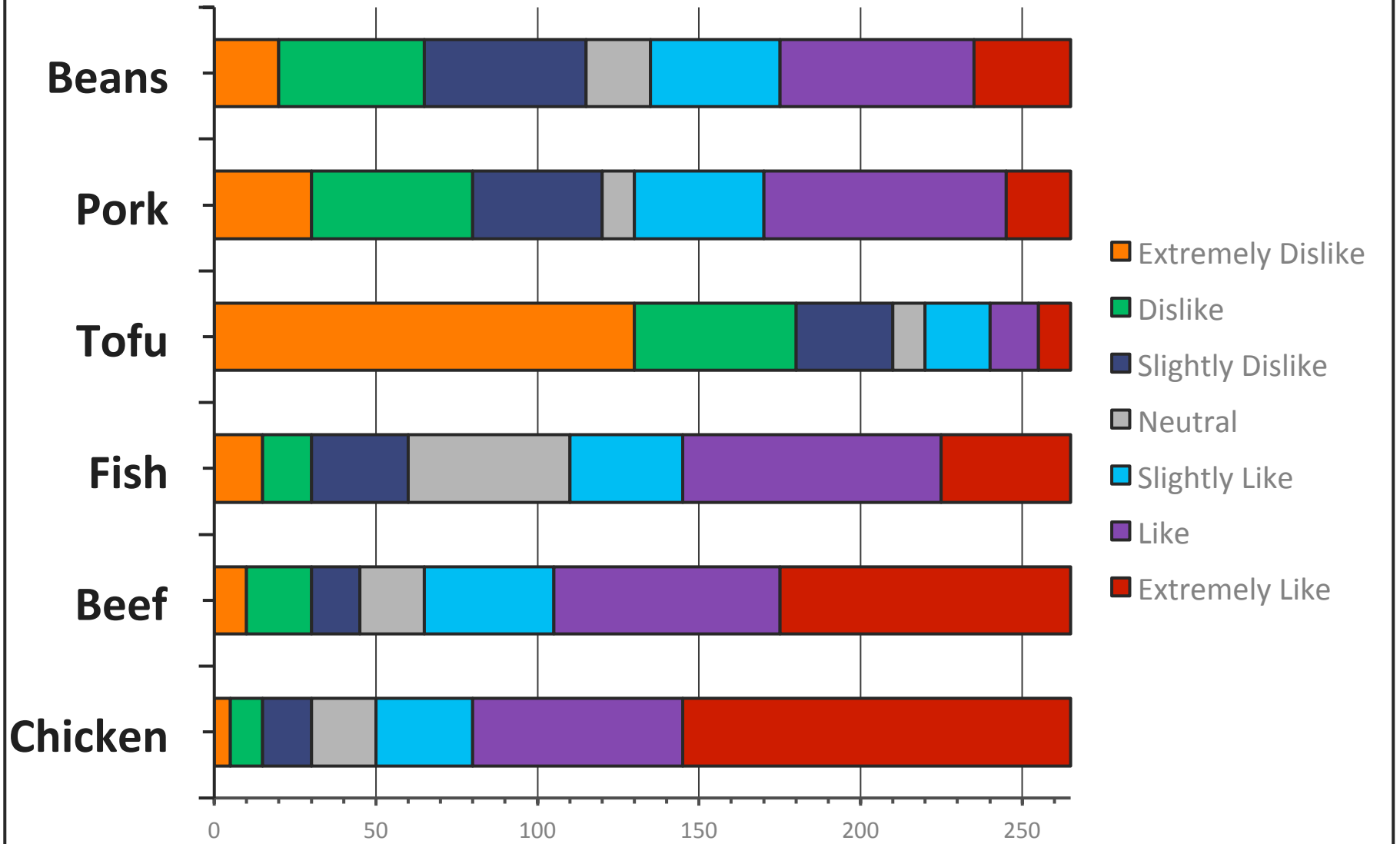


3. Emphasize
your story

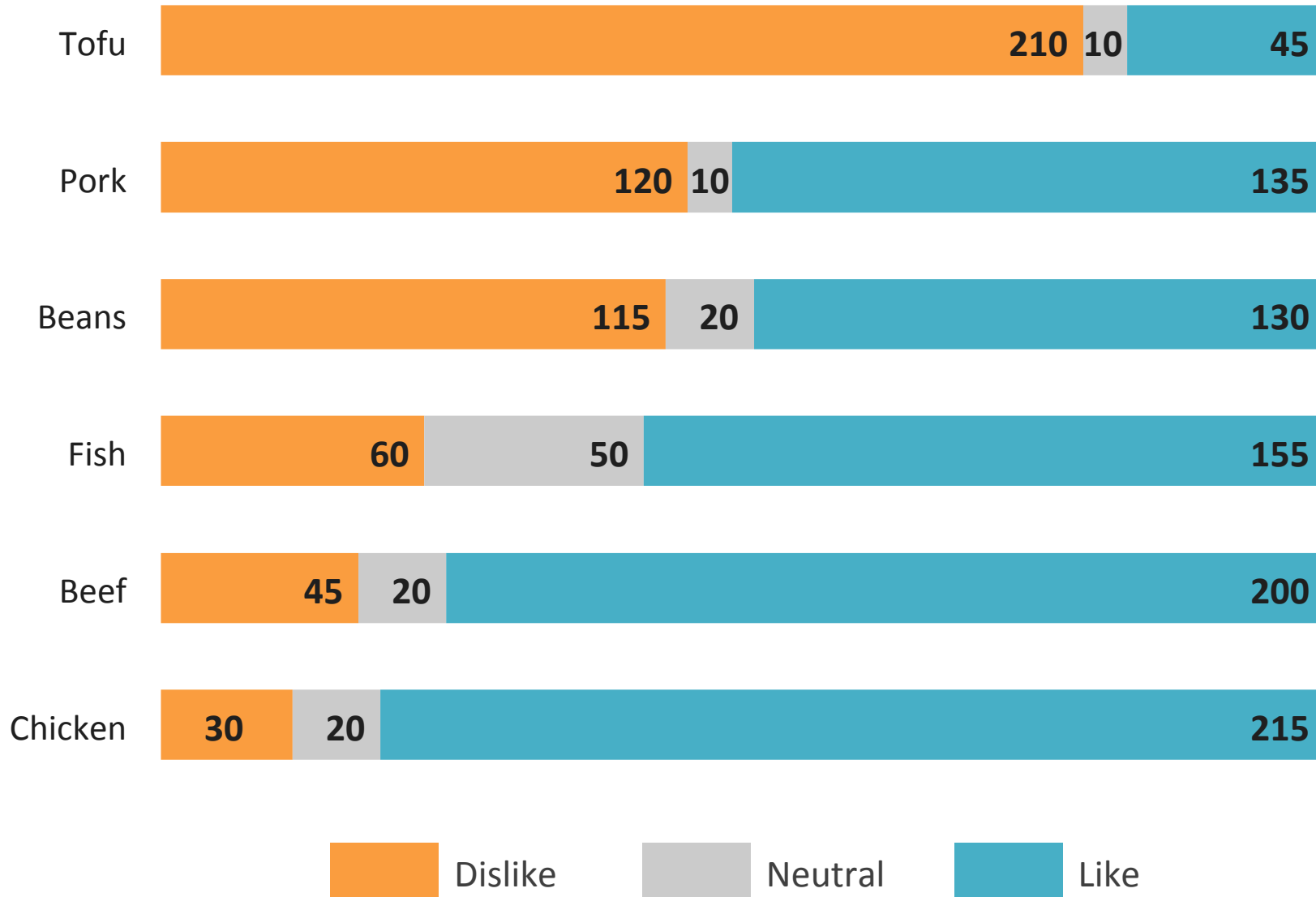


REDUCE CLUTTER

Protein Preference



Of all protein options, most people **dislike tofu**.



GESTALT

Proximity










A

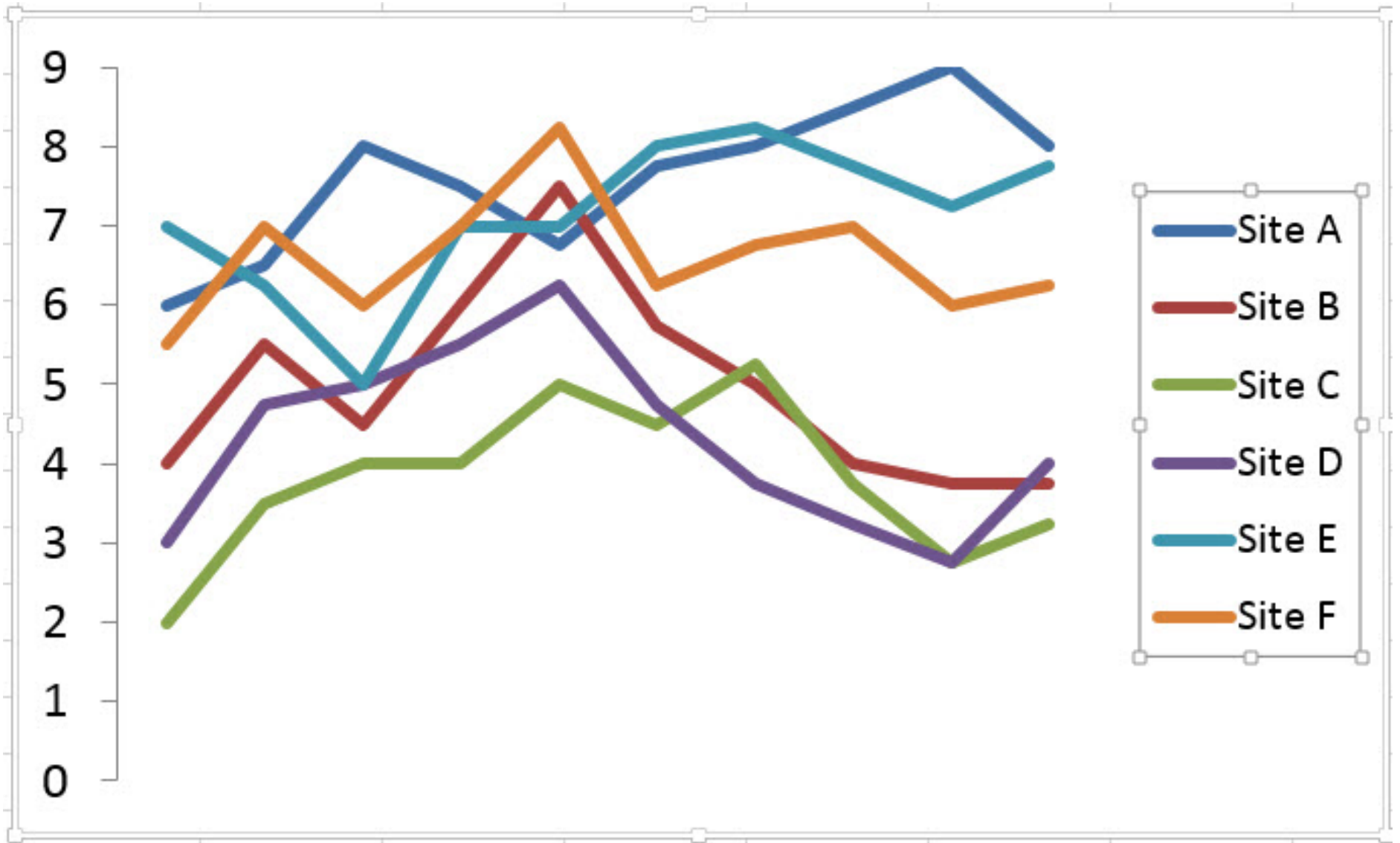
VS



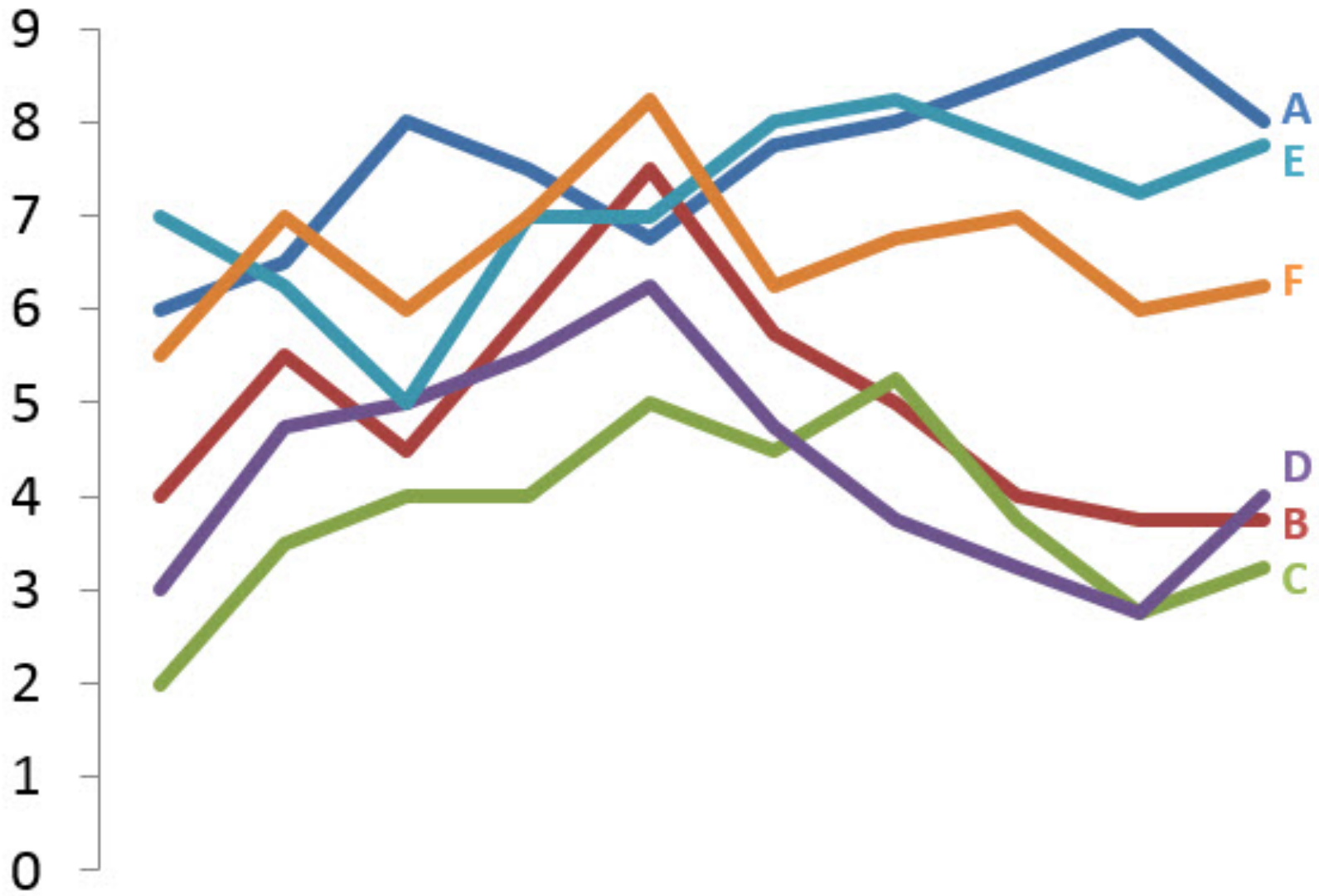
B

Indicators	2014	2015	2016	Increase	Trend
Total Active Employers	10,234	10,867	11,045	+13%	
Total Active Contacts	9,789	10,852	11,098	+11%	
Alumni Employer Contacts	1,005	1,107	3,056	+13%	
Students with active resumes	1,567	2,145	2,005	-5%	
Alumni with active resumes	2,730	2,740	3,200	+22%	
Students with complete profiles	2,300	4,494	4,105	-10%	
Alumni with complete profiles	3,222	3,297	3,407	+4%	

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Example from Evergreen Data's blog "Directly Labeling in Excel"



Example from Evergreen Data's blog "Directly Labeling in Excel"

YES!



EQUITY IN TEACHER DISTRIBUTION

Some observers speculated that high-poverty schools¹⁷ could not be staffed without a restricted hiring process and that the mutual consent system would result in an exodus of quality teachers to schools serving higher income populations, with the remaining vacancies left to be filled with novices. There is, however, no evidence that the system has harmed high-poverty schools. In fact, the majority (62 percent) of teachers who received transfers moved into a new school with an equivalent or higher level of poverty (see *Figure 04*).¹⁸

EFFECTIVENESS OF MATCHES

The mutual consent system appears to be facilitating effective matches between teachers and schools. Between 2006 and 2007, the total number of teachers applying for voluntary transfers decreased by approximately 21 percent, from 6,616 in 2006 to 5,163 in 2007. In 2007, just 9 percent of voluntary transfers who were selected for a position at a new school indicated that they intended to apply to transfer again next year.¹⁹

Although baseline data on teachers' intentions to transfer prior to 2006 are not available in New York, data from other urban school districts suggest that giving teachers and principals greater say in the hiring process reduces the churn of teachers from school to school and leads to satisfying assignments that teachers are not inclined to leave. For example, a 2007 survey of teachers in Milwaukee Public Schools showed that 62 percent of all teachers who were centrally assigned to their positions planned to consider a transfer the following year; in comparison, only 22 percent of Milwaukee teachers who were hired through a school interview process planned to transfer again.²⁰

Ultimately, this pattern benefits not only schools and students, by encouraging stability, but also transferring teachers themselves, whose increasing average selection rate from year to year (30 percent in 2006, 44 percent in 2007) may be linked to the decreasing size of the transfer pool as teachers find lasting matches.

Figure 04
RELATIVE POVERTY LEVEL* OF NEW SCHOOL (VS. PREVIOUS SCHOOL) FOR SELECTED TRANSFER TEACHERS, BY SENIORITY

*As measured by Free and Reduced Price Lunch (FRPL) quartile

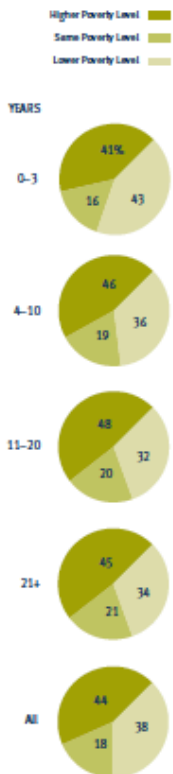
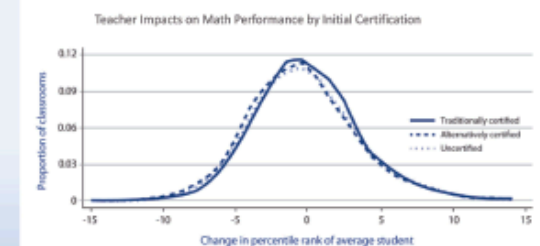


Figure 4
Evidence About New Teachers



Note: Classrooms lead impacts on average student performance, controlling for baseline scores, student demographics, and program participation. All 2002 classroom teachers at mid-level through low for details of how an oratory level regression was used to adjust for student background, teacher performance, and other factors, see the appendix.

Source: Gordon, Hans, Shapiro, *Identifying Effective Teachers Using Performance on the Job*, The Hamilton Project, Brookings Institution, April 2008.

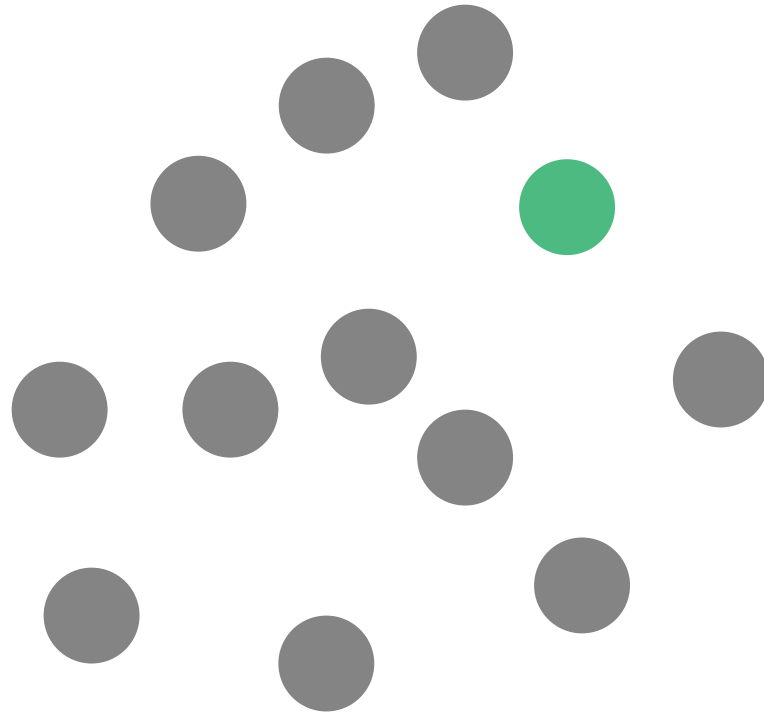
While, in theory, certification should be an indicator of teacher preparedness, the reality is that certification status does not provide assurance that teachers know and can teach their subjects well. The figure above illustrates this point. There are a few obvious areas where the reality of teacher certification clearly is not aligned with the goals of HQT. Congress must ensure that the Department properly enforces the intent of the law and fixes loopholes in these areas, which are discussed below.

Figure 5
Do states distinguish between elementary and secondary special education teachers?

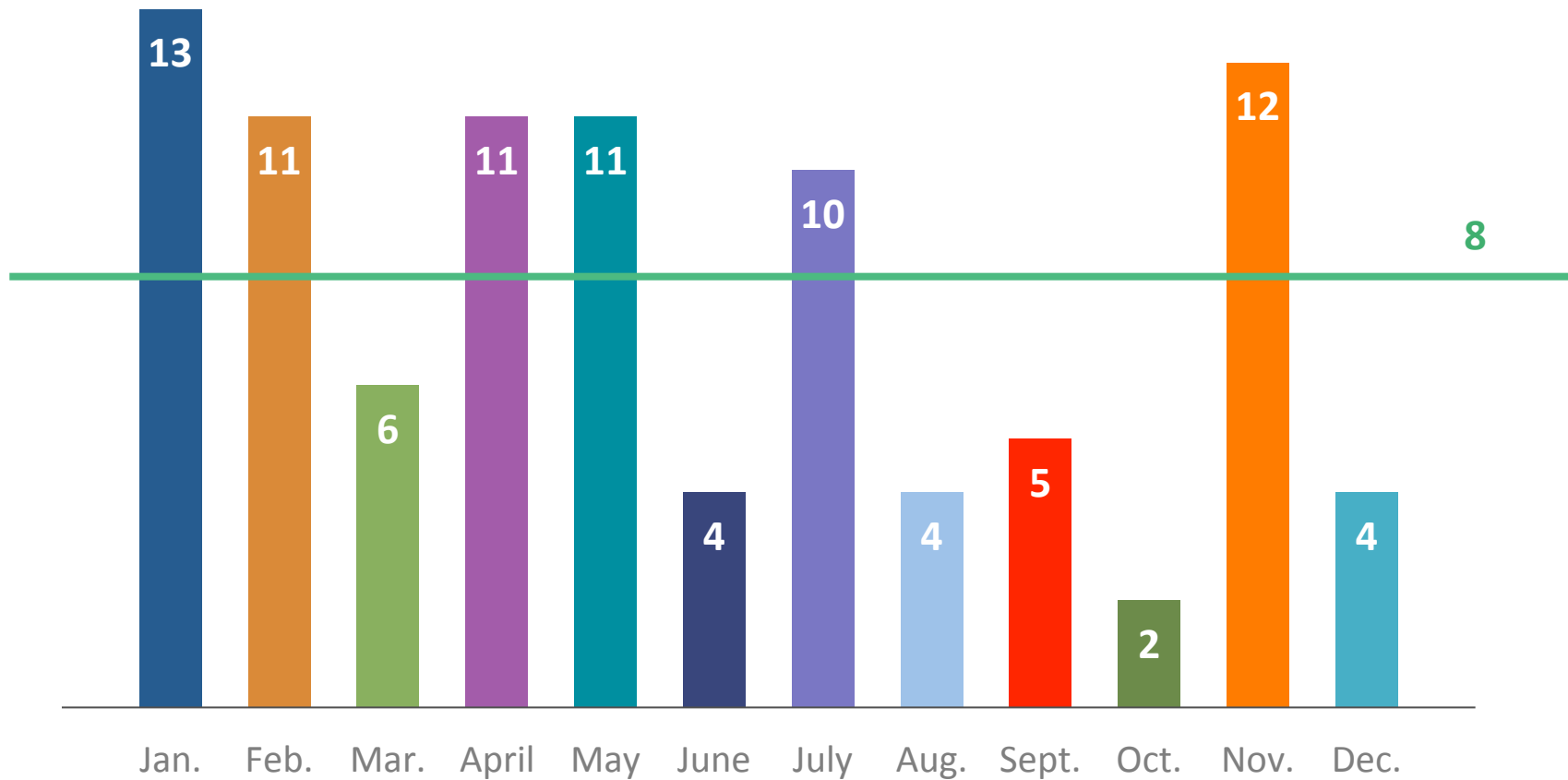
State	0-5% of all K-12 teachers	More than 5% of all K-12 teachers	Do not distinguish between K-12
Alabama	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alaska	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Arizona	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Arkansas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
California	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Colorado	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

↑ NO

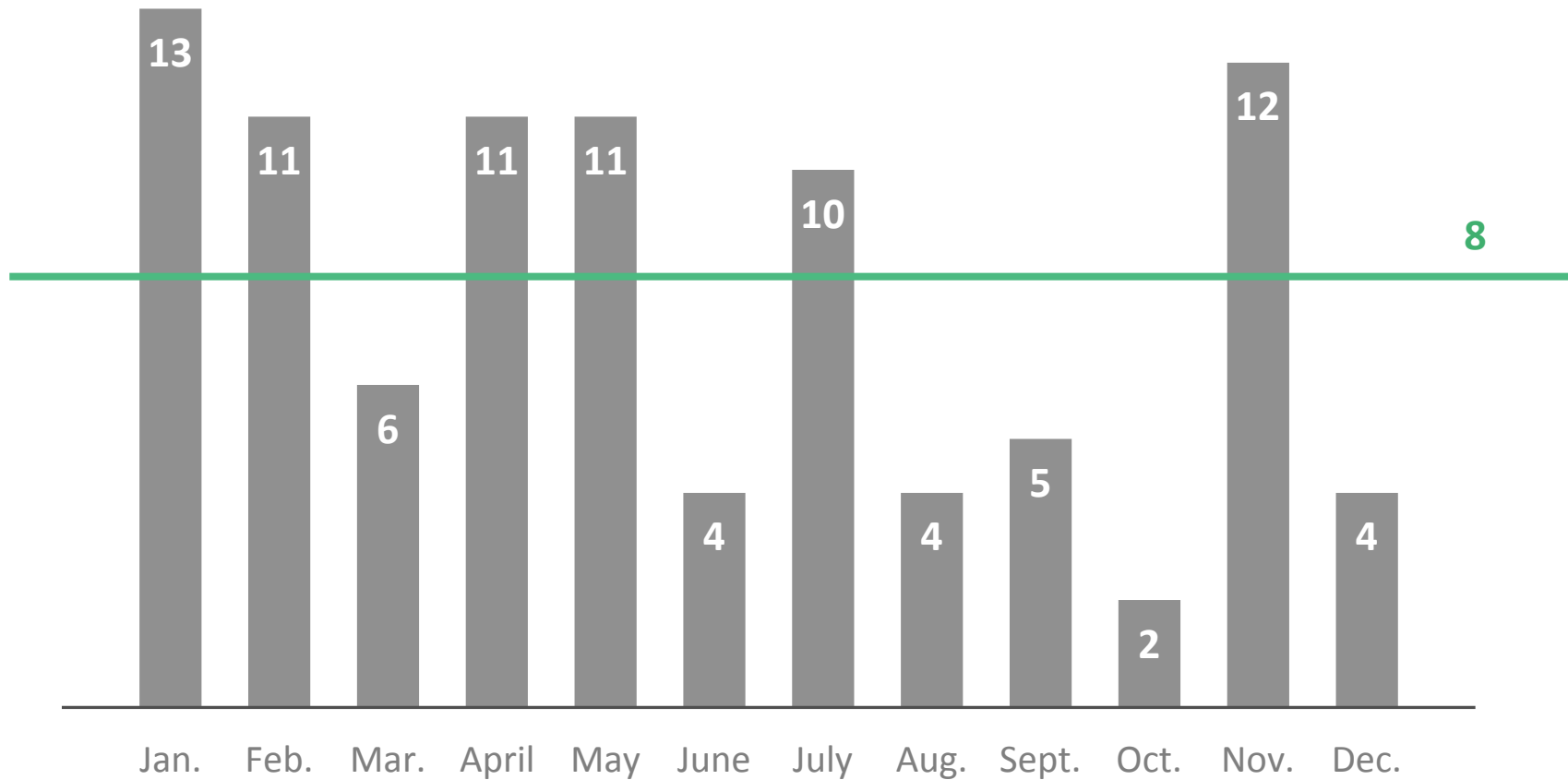
Focal Point



There is an **average** in-flow of **8 veterans** coming into our homeless system every month.



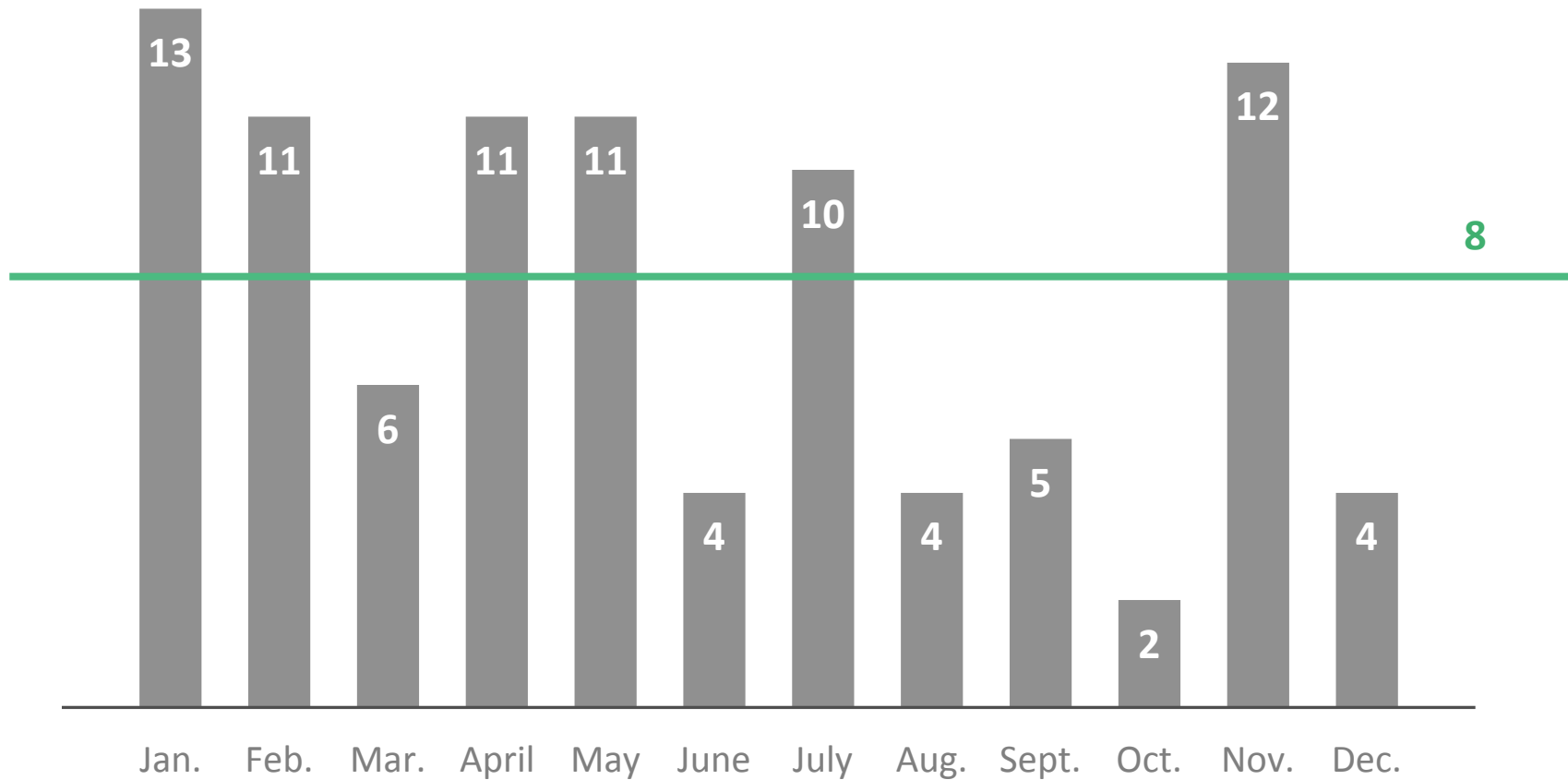
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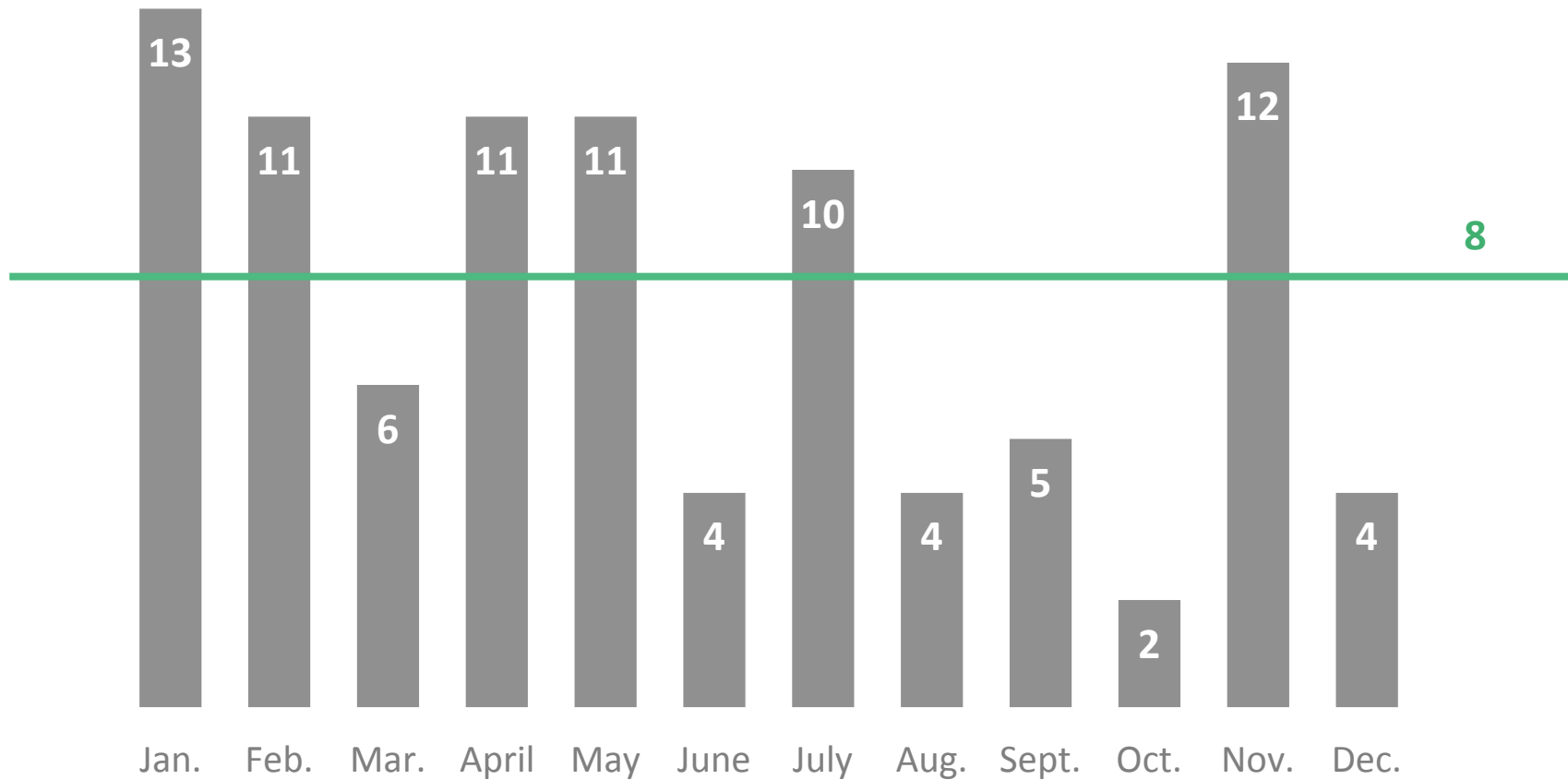
Continuity



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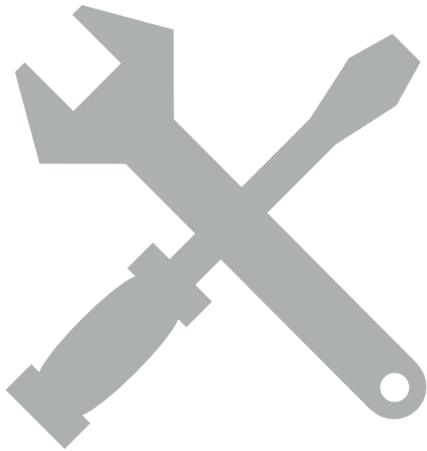


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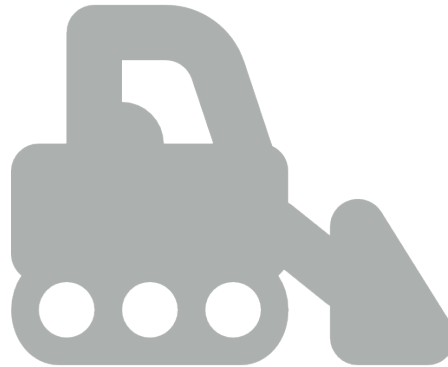


VISUALIZATION PROCESS

1. Build it



2. Break it down

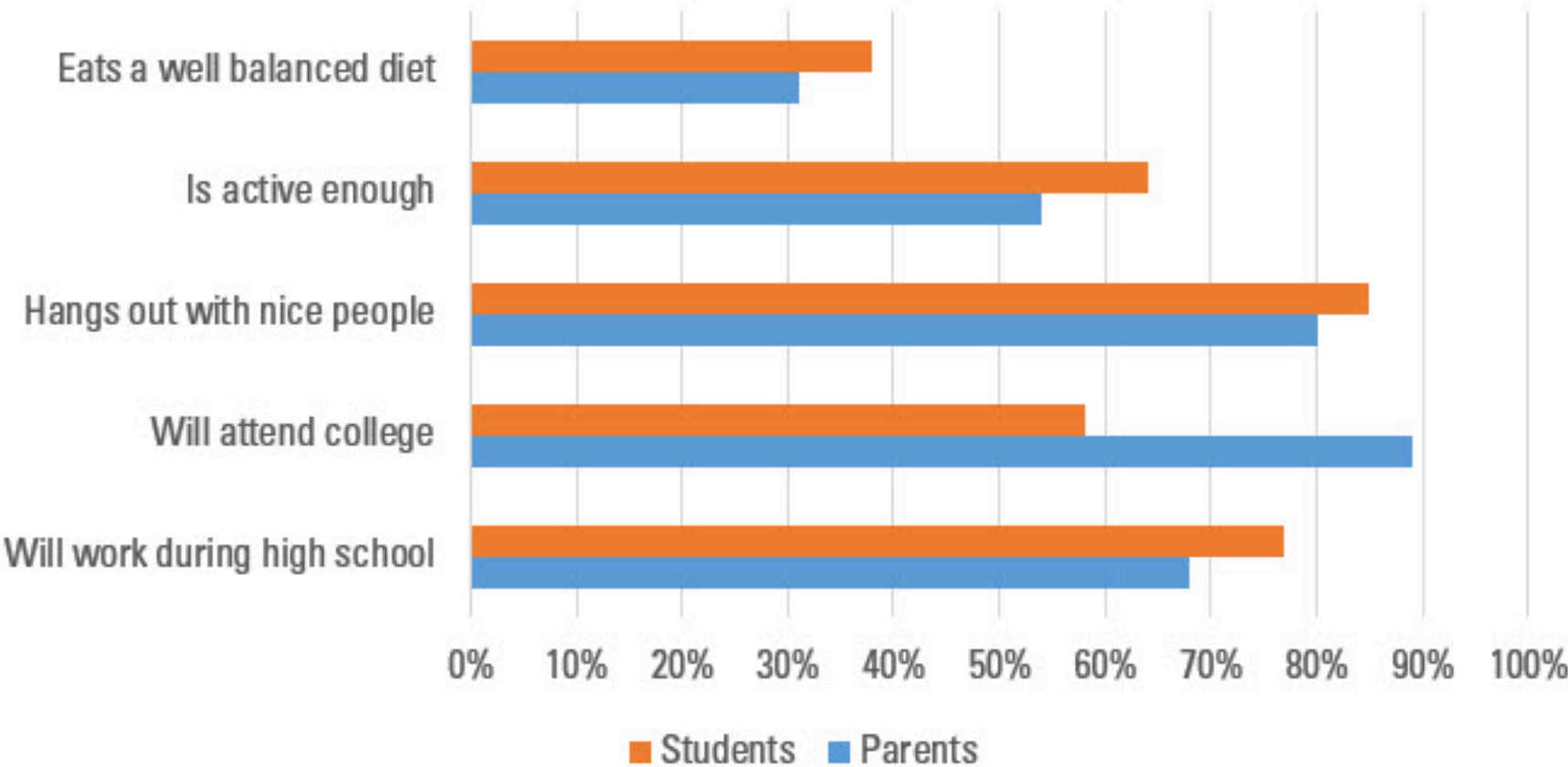


3. Emphasize
your story

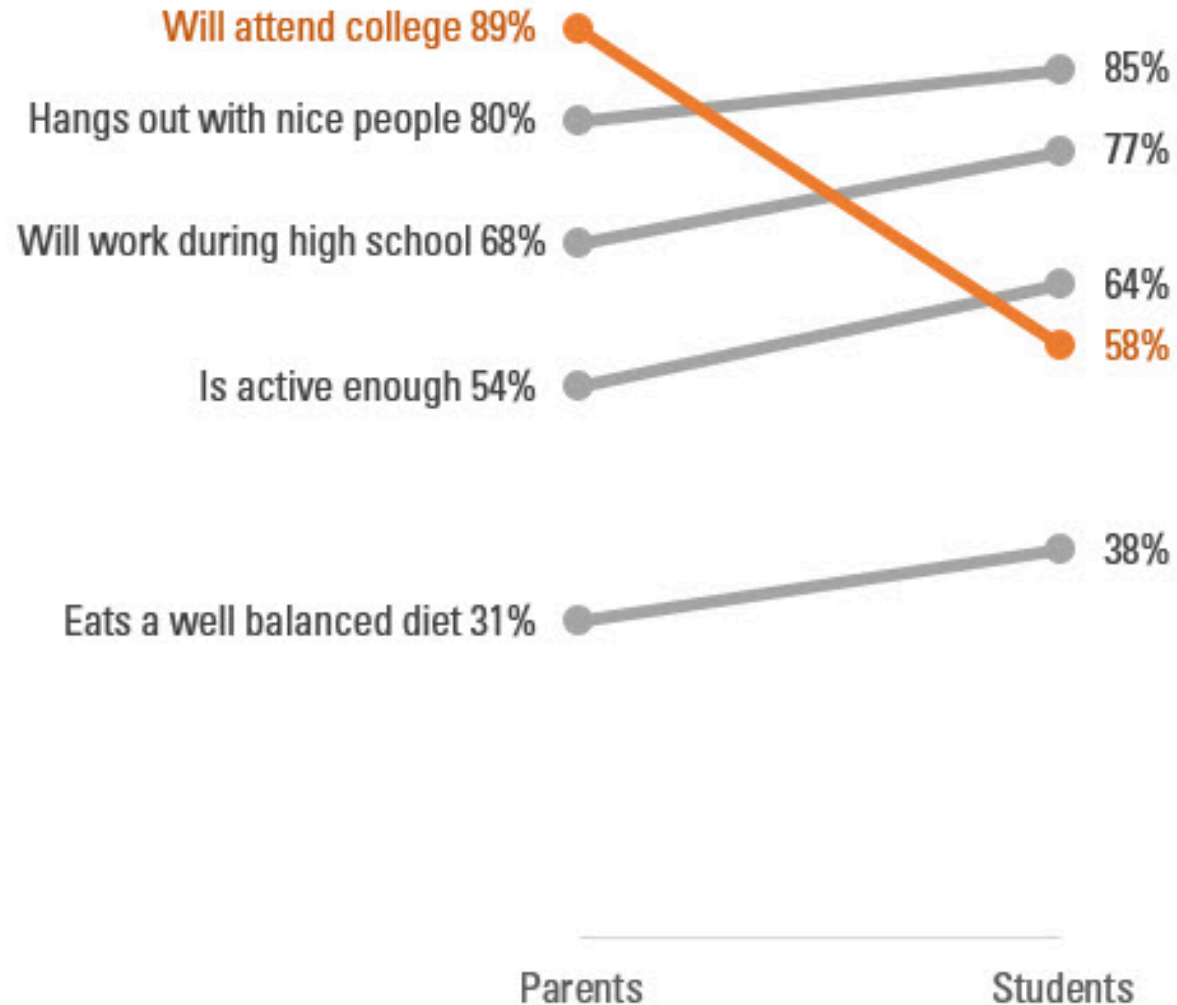


STRATEGIC TEXT

Parent v. Student Perspectives



Surprisingly, students have lower expectations to go to college than their parents have of them.



Descriptive Title

Active Title

Descriptive Title

Active Title

Protein Preferences

Descriptive Title

Protein Preferences

Active Title

Of all protein options, most people dislike tofu.

Descriptive Title

Protein Preferences

**2015 vs. 2016 Program
Enrollment by Race**

Active Title

**Of all protein options, most
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Descriptive Title

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**2015 vs. 2016 Program
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Active Title

Of all protein options, most people dislike tofu.

2016 enrollment for people of color has increased by 5%.

Descriptive Title

Protein Preferences

**2015 vs. 2016 Program
Enrollment by Race**

**Customer Satisfaction
Survey Results**

Active Title

**Of all protein options, most
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**2016 enrollment for people of
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Descriptive Title

Protein Preferences

**2015 vs. 2016 Program
Enrollment by Race**

**Customer Satisfaction
Survey Results**

Active Title

**Of all protein options, most
people dislike tofu.**

**2016 enrollment for people of
color has increased by 5%.**

**Overall, respondents were
most satisfied by our
organization's customer
service and follow-up.**

COLOR

Form

Orientation



Line Length



Line Width



Size



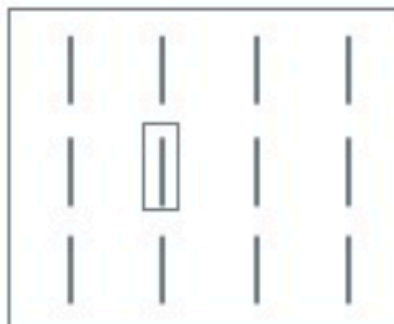
Shape



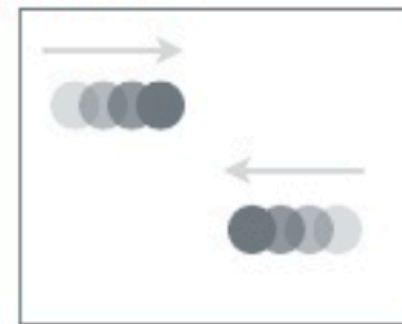
Curvature



Enclosure

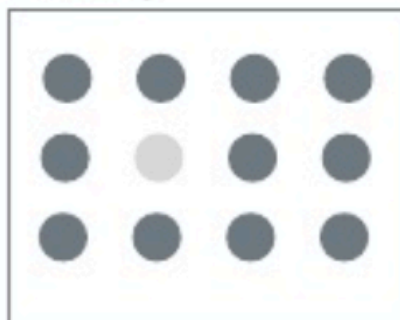


Motion

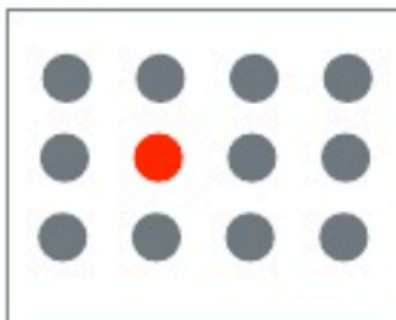


Colour

Intensity

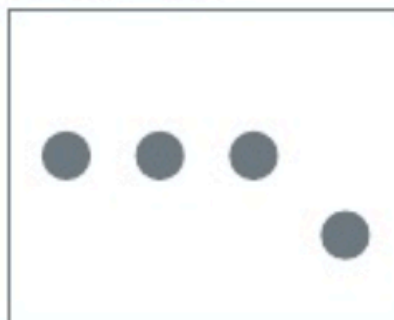


Hue

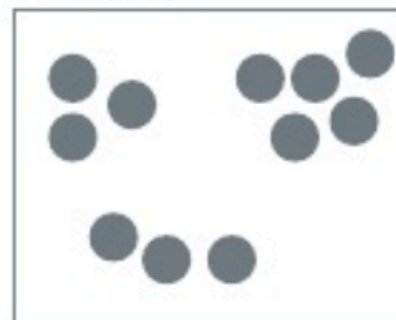


Position

2-D Position



Grouping



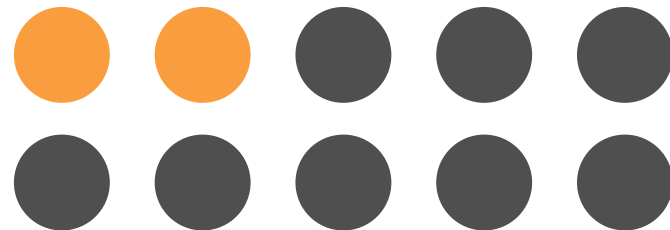
I love learning about data visualization. It is so great to learn all of these new data best practices I will apply the things I have learned today to the data I use in my own work. Data visualization helps me better tell my story and communicate with my intended audience.

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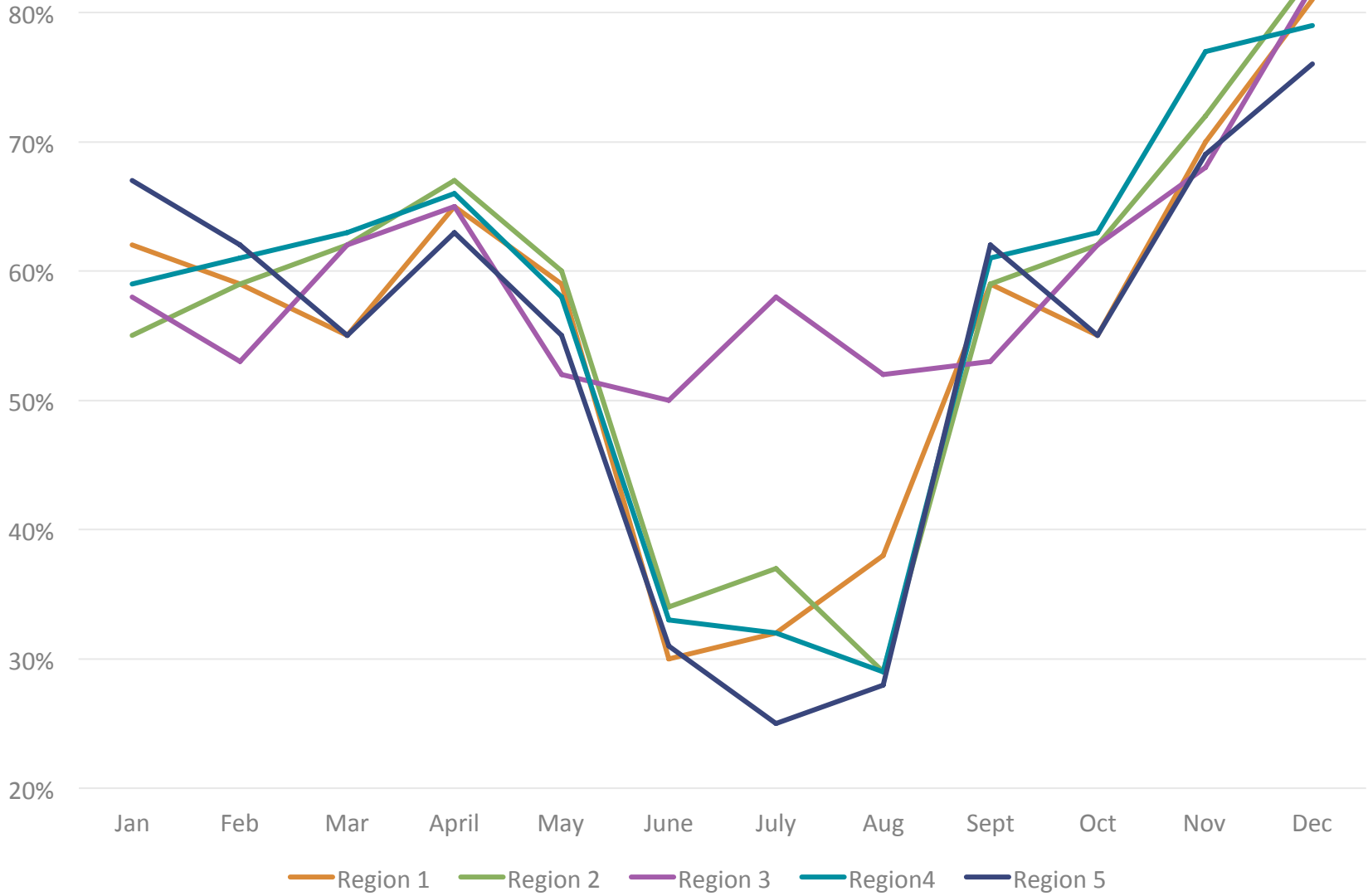
2 out of 10 people
receiving our services
are women.

VS.

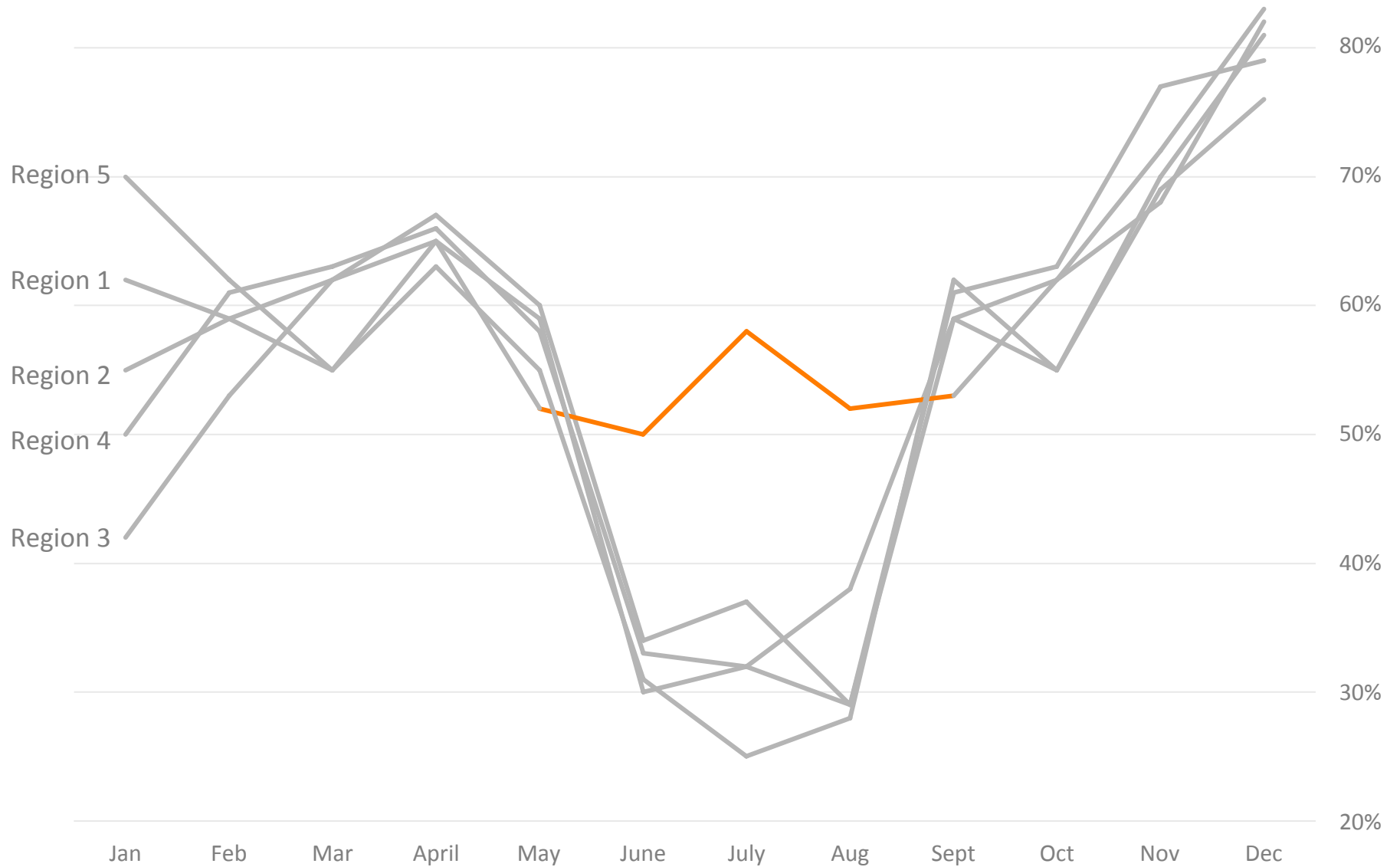
2 out of **10** people receiving
our services are **women**.



Regional sales for 2015



Region three **sustained** the usual summer sales slump.



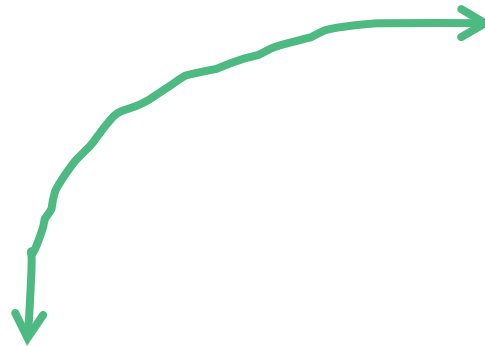
All sales **increased significantly** during the holiday season.



National Autism Indicators Report Transition Into Young Adulthood

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Youth on the Autism Spectrum: Characteristics at age 17	17
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Executive Summary

National Autism Indicators Report

Where we stand

Young adults with autism face... working, continuing education, housing and life. To... of a services cliff, with too many having no...

The issues

Lifelong service and support need

Autism spectrum disorder (ASD) is a lifelong neurodevelopmental disorder. The effects of environmental regulations, language and social communication skills are present across the life span.

No two people on the autism spectrum are the same. The nature and severity of impairments differs widely at the autism spectrum. As a result, supports are greatly and continually change as individual needs evolve.

A growing demand for solutions

Autism spectrum disorder was once considered a childhood diagnosis. The definition of autism has changed over time with the severity of impairments, some qualify...

The Services Cliff

Services decreased significantly

Our key findings

- During high school, over half of youth received special services for therapy, occupational therapy, social skills, case management, transportation and/or personal assistance services.
- However, 80% of these services all decreased dramatically for these youth between high school and their early 20s.
- Approximately only 26% of young adults who decreased special services had any services in their 20s to help them become employed. Consider their status as low as or not employed.
- 31% of young adults who were not employed and were attending higher education had no services.

Transition Planning: Special Education and Services

Building a bridge to the future

Our key findings

- 58% of youth with autism had a transition plan in place by the federally required age, according to special education records.
- 62% of parents participated in transition planning. Over 25% led the planning process.
- Over half of the group of youth who were unable to respond to the survey said they wanted to be more involved in transition planning.

Federal is transition student s

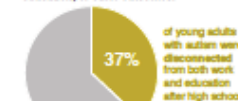
Young Adult Outcomes and Disconnection

The big picture

Our key findings

- Over one-third of young adults were disconnected during their early 20s, meaning they were not in a job or continued education after high school.
- Young adults on the autism spectrum had the highest rate of disconnection than their peers with other disabilities. Over 50% of young adults with a learning disability remained disconnected, as well as 40% of youth with intellectual disability. Compared to 37% of those with autism.

The purpose of transition planning is to connect students to work, continued education, or other outcomes.



Example from Evergreen Data's Blog

When youth do manage a job or continue their education after...



DATA VISUALIZATION

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VISUALIZATION PROCESS



1 Build It

- Check out the seminal work of Cleveland and McGill in their paper (see below)
- Only use pie charts with 3 slices or less
- To get away from horizontal bar graphs, try using a lollipop chart which decreases cognitive load and graphs higher up on the Cleveland hierarchy

Resources

[Stephanie Evergreen's Chart Building How-to Blogs](#)
[Ann Emery's Essentials Chart Choosing Tool](#)
[Evergreen Data's Qualitative Chart Chooser](#) (designed by me)
[Cleveland and McGill's Paper](#)



2 Break It Down

Reduce Clutter

- Start by taking off gridlines, axes, chart border, chart fill, non-descriptive title, and chart legend
- Deemphasize everything on the graph by greying all the data out

Apply Gestalt Principles

- Proximity: Directly label graphs and make sure referenced graphs are near the associated text
- Focal Point: After greying everything out, emphasize your story intentionally to create focal point in the graph

Resources:

[Stephanie Evergreen and Ann Emery's Data Viz Checklist](#)
[Handouts from Stephanie Evergreen's Blog](#) (sign up for membership, it's so worth it!)
[Twain Taylor's Article on Gestalt](#)



3 Emphasize Your Story

Use Text Strategically

- Make your chart title say the main point of the graph
- Link the story in the title with the data in the graph using color

Color

- Use gestalt and color to tell your story. This taps into people's preattention and is more likely to end up in long term memory
- Color code a long report
- Be aware of color blindness and printing in black and white

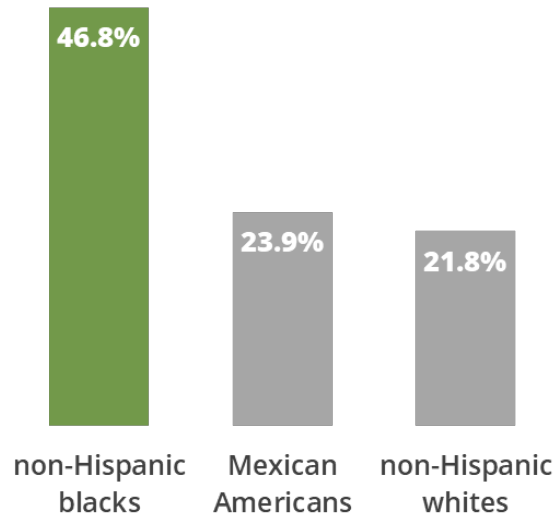
Resources:

[Stephanie Evergreen's Blog on Strong Titles](#)
[Cole Nussbaumer's Talk on Data Visualization](#)
[Twain Taylor's Article on Preattention](#)
[Color Brewer 2](#)
[Adobe Color Kuler](#)

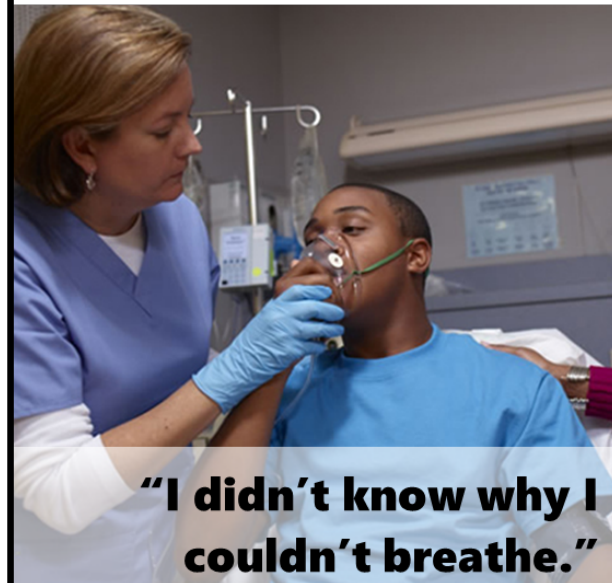
SOCIAL MEDIA

Disparities in second hand smoke exposure persist for Black Americans.

Nearly **half of Black nonsmokers** in the United States were exposed to secondhand smoke.



When Jamason was 16, secondhand smoke triggered such a **severe asthma** attack, he was hospitalized for four days.



GOING SMOKEFREE MEANS FINDING BETTER WAYS TO ENJOY THE DAY.



Cigarette smoking is the leading cause of preventable disease and death in the United States.

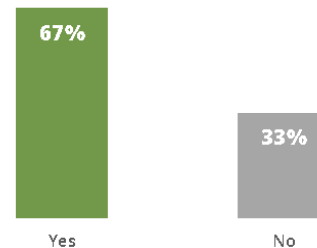
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec bibendum viverra purus a porttitor. Curabitur placerat enim consectetur, venenatis augue sed, rhoncus neque. Vivamus lacus tortor, molestie vitae mauris sed, sollicitudin dictum nisi. Cras sagittis porttitor mauris, in auctor ex facilis et. Curabitur ac pretium justo, ac rhoncus libero. Mauris id elementum neque. Etiam commodo, est non dictum maximus, tellus ante aliquet lacus, non laoreet urna sem in tortor. Mauris id elementum neque. Etiam commodo, est non dictum maximus, tellus ante aliquet lacus, non laoreet urna sem in tortor. Mauris id elementum neque.

Cigarette smoking accounts for 1 of every 5 deaths.



You are never too old to quit.

67% of smokers made an attempt to quit.



Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec bibendum viverra purus a porttitor. Curabitur placerat enim consectetur, venenatis augue sed, rhoncus neque. Vivamus lacus tortor, molestie vitae mauris sed, sollicitudin dictum nisi. Cras sagittis porttitor mauris, in auctor ex facilis et. Curabitur ac pretium justo, ac rhoncus libero. Mauris id elementum neque. Etiam commodo, est non dictum maximus, tellus ante aliquet lacus, non laoreet urna sem in tortor. Mauris id elementum neque. Mauris id elementum neque. Tellus ante aliquet lacus, non laoreet urna sem in tortor. Mauris id elementum neque. Mauris id elementum neque.

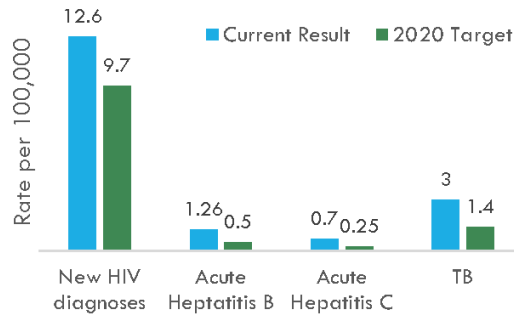


FOR FREE HELP VISIT CDC.GOV/QUIT

National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention - Strategic Plan Indicator Dashboard

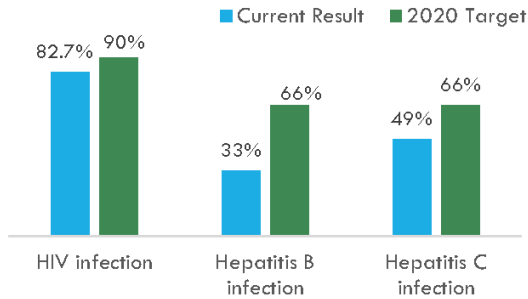
Goal 1: Decrease incidence of infection with HIV, viral hepatitis, STDs, and TB
[\(See all indicators\)](#)

Reduce new diagnoses

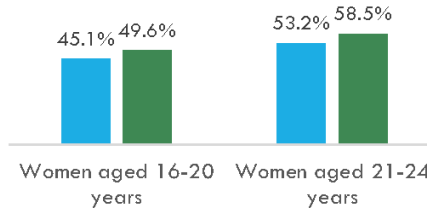


Goal 2: Decrease morbidity and mortality from HIV, viral hepatitis, STDs, and TB
[\(See all indicators\)](#)

Increase the proportion of people who are aware of their infection

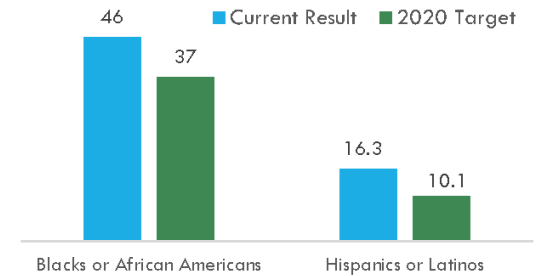


Increase the proportion of young sexually active females who are screened for chlamydia

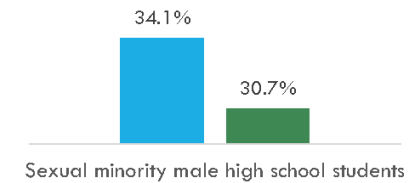


Goal 3: Decrease health disparities across groups affected by HIV, viral hepatitis, STDs, and TB
[\(See all indicators\)](#)

Reduce the rate of new HIV diagnoses among



Increase the percentage of sexually active minority male high school students in major urban centers who have engaged in HIV/STD risk behaviors



Division of HIV/AIDS Prevention Indicators
[\(See all indicators\)](#)

Division of Viral Hepatitis Indicators
[\(See all indicators\)](#)

Division of STD Prevention
[\(See all indicators\)](#)

Division of TB Prevention
[\(See all indicators\)](#)

Division of Adolescent and School Health
[\(See all indicators\)](#)

National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention - Strategic Plan Indicator Dashboard

GOAL 1

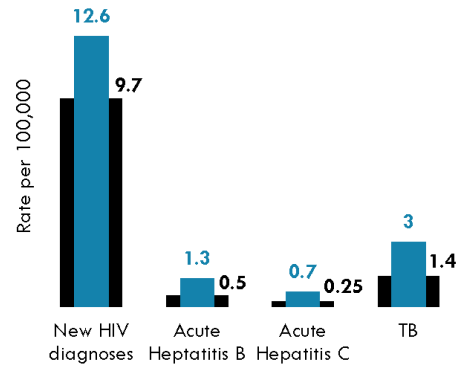
Decrease incidence of infection with HIV, viral hepatitis, STDs, and TB

(See all indicators)

■ Current Result ■ 2020 Target

Reducing new diseases

✓ 2020 TARGET MET



GOAL 2

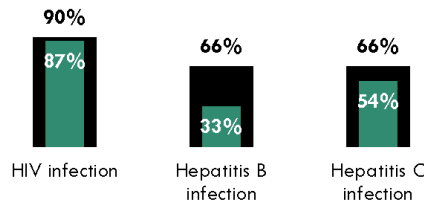
Decrease morbidity and mortality from HIV, viral hepatitis, STDs, and TB

(See all indicators)

■ Current Result ■ 2020 Target

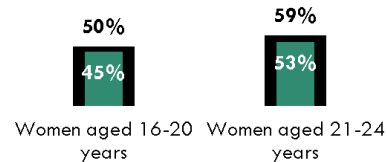
Increase the proportion of people who are aware of their infection

□ 2020 TARGET MET



Increase the proportion of young sexually active females who are screened for chlamydia

□ 2020 TARGET MET



GOAL 3

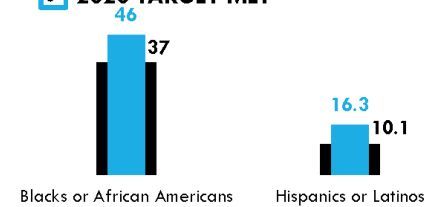
Decrease health disparities across groups affected by HIV, viral hepatitis, STDs, and TB

(See all indicators)

■ Current Result ■ 2020 Target

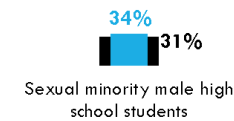
Reduce the rate of new HIV diagnoses among

✓ 2020 TARGET MET



Increase the percentage of sexually active minority male high school students in major urban centers who have engaged in HIV/STD risk behaviors

✓ 2020 TARGET MET



INTERESTED IN LEARNING MORE?

Division of HIV/AIDS Prevention Indicators

(See all indicators)

Division of Viral Hepatitis Indicators

(See all indicators)

Division of STD Prevention

(See all indicators)

Division of TB Prevention

(See all indicators)

Division of Adolescent and School Health

(See all indicators)

National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention - Strategic Plan Indicator Dashboard

Goal 2: Decrease morbidity and mortality from HIV, viral hepatitis, STDs, and TB

Indicator	Current Result (year)	2020 Target	Progress Status	Trends	Learn more
Reduce deaths from HIV	18.0 deaths/1,000 persons with diagnosed HIV infection (2012)	15.5 deaths/1,000 persons with diagnosed HIV infection		Trends	Learn more
Reduce deaths from hepatitis B	1,873 (2013)	1,754		Trends	Learn more
Reduce deaths from hepatitis C	19,368 (2013)	16,370		Trends	Learn more
Increase the proportion of persons with HIV who achieve viral suppression	50.1% (2012)	80%		Trends	Learn more
Increase the proportion of persons with gonorrhea who are treated with an effective antibiotic regimen	80.8% (2012)	90%		Trends	Learn more
Increase the percentage of people who are aware of their HIV infection	82.7% (2012)	90%		Trends	Learn more
Increase the percentage of people who are aware of their hepatitis B infection	33% (2009)	66%		Trends	Learn more
Increase the percentage of people who are aware of their hepatitis C infection	49% (2002-2011)	66%		Trends	Learn more
Increase the percentage of sexually experienced high school students who have been tested for HIV	22.4% (2013)	24.6%		Trends	Learn more
Increase the percentage of STD clinic visits in which patients who are diagnosed with an acute STD and are not known to be HIV infected are tested for HIV	72% (2012)	79%		Trends	Learn more
Increase the proportion of young sexually active females who are screened for chlamydia	Women 16-20 yrs: 45% Women 21-24 yrs: 53.2%	Women 16-20 yrs: 49.6% Women 21-24 yrs: 58.5%		Trends	Learn more

Progress Status Symbol Definitions



Movement toward 2020 target



No change



Movement away from 2020 target

National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention - Strategic Plan Indicator Dashboard



Goal 2: Decrease morbidity and mortality from HIV, viral hepatitis, STDs, and TB

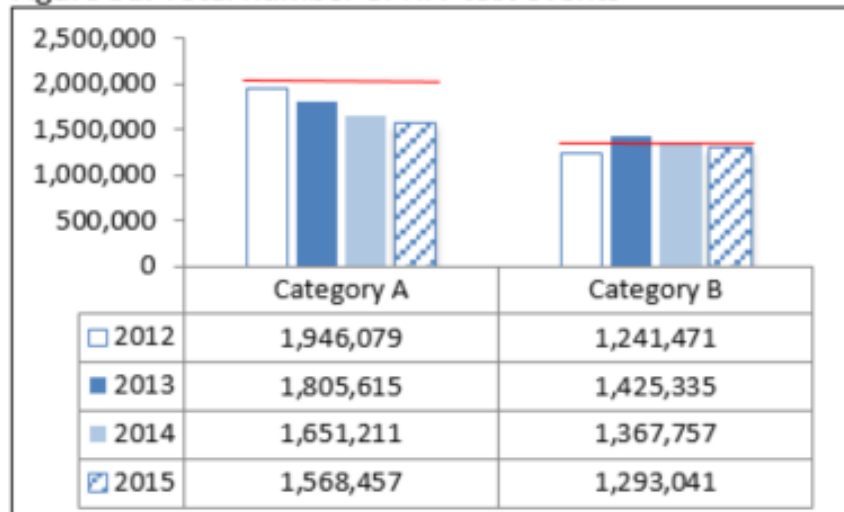
Indicator	Previous Data (Year)	Previous Data (Year)	Previous Data (Year)	Previous Data (Year)	Current Data (Year)	Trend	2020 Goal	Progress
Reduce deaths for people diagnosed with...								
HIV					18 (2012)		15.5	★
Hepatitis B	1,792 (2010)	1,804 (2011)	1,771 (2012)	1,873 (2013)	1,843 (2014)		1,754	★
Hepatitis C	16,627 (2010)	17,721 (2011)	18,650 (2012)	19,368 (2013)	19,659 (2014)		16,370	★
Increase the proportion of persons with HIV who achieve viral suppression								
		46% (2010)	48.5% (2011)	51.6% (2012)	54.7% (2013)		80%	▲
Increase the proportion of persons with gonorrhea who are treated with an effective antibiotic regimen								
		84.6% (2010)	71.4% (2011)	80.8% (2012)	80.1% (2013)		90%	▲
Increase the percentage of people who are aware of their infection for people diagnosed with...								
HIV	85.2% (2009)	85.9% (2010)	86.4% (2011)	86.8% (2012)	87% (2013)		90%	▲
Hepatitis B					33% (2009)		66.0%	▲
Hepatitis C			49% (2011)		54% (2014)		66.0%	▲
Increase the percentage of sexually experienced high school students who have been tested for HIV								
	22.2% (2011)		22.4% (2013)		17.2% (2015)		24.6%	▲
Increase the percentage of STD clinic visits in which patients who are diagnosed with an acute STD and are not known to be HIV infected are tested for HIV								
				72% (2013)	70.7% (2014)		79.0%	▲
Increase the proportion of young sexually active females aged 16-20 who are screened for chlamydia								
				45.1% (2013)	45.6% (2014)		49.6%	▲
Increase the proportion of young sexually active females aged 21-24 who are screened for chlamydia								
				53.2% (2013)	54% (2014)		58.5%	▲

★ Movement toward 2020 target

▲ No change

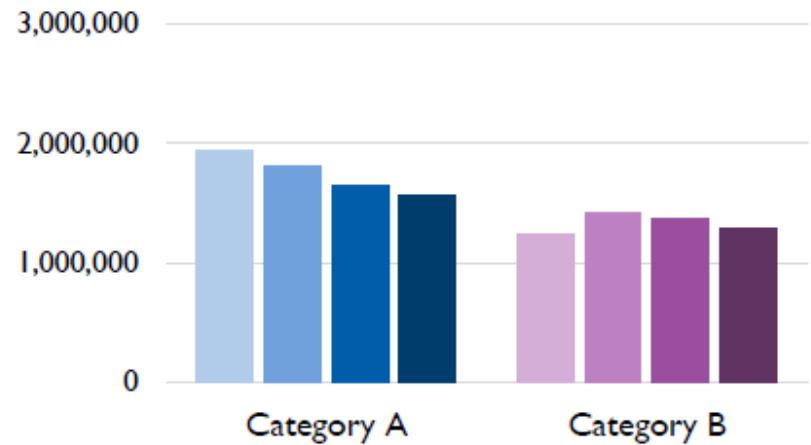
● Movement away from 2020 target

Figure 9a: Total number of HIV test events



Total number of HIV test events

Figure 9a



Lung Decision Precision Quarterly Report | April 2017

Evertown Medical Center



Website Usage at Your Facility

Patient information was entered

63 times

Patient handout was PDF'd or printed

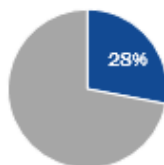
28 times

Patient handout was emailed

17 times

Patient Survey Findings

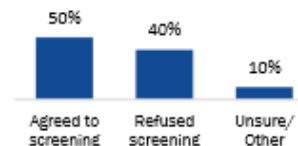
Survey response rate
56 of 200 patients responded



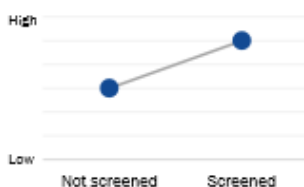
Average knowledge about screening
n=49



Self-reported screening decision
n=51



Knowledge about screening by screening decision
n=49

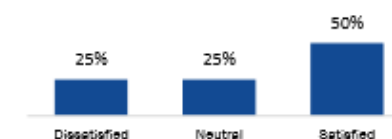


Patient Satisfaction

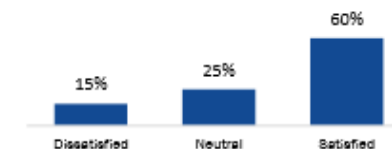
Satisfaction with level of involvement
n=52



Satisfaction with decision-making process
n=50



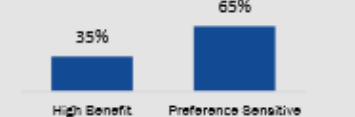
Overall satisfaction with the discussion
n=52



Patient Lung Cancer Risk

Patients who meet the eligibility criteria for screening may be categorized into one of two groups:
High Benefit: Benefits of screening are large compared to the harms.
Preference Sensitive: The benefits of screening are on a par with the harms. An individual patient's values will play a large role in finding the best screening decision for that patient.

Risk category of eligible patients
n=80



Key Events

HIV Prevention Timeline

Key Events vs. CDC Response

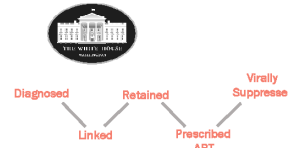
2006-2016



Integrated HIV Prevention and Care Plan Guidance, including the Statewide Coordinated Statement of Need 2017-2021



National HIV/AIDS Strategy 2020
 ◀ charts a course for collective action to move us close to the Strategy's vision
 ◀ Highlighted groups: gay and bisexual men, young Black gay and bisexual men, Black females, and persons living in the Southern United States.



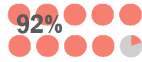
HIV Care Continuum Initiative
 Executive Order directs federal agencies to improve HIV continuum of care outcomes



FDA approves the use of Truvada
 First HIV treatment to be approved for pre-exposure prophylaxis (PrEP)



Treatment as Prevention
 NIH study results show 96% reduction in HIV transmission among serodiscordant heterosexual couples when treatment is initiated early



Affordable Care Act

- ◀ Expands access to care and prevention for all Americans
- ◀ No denial of coverage for pre-existing conditions, like HIV
- ◀ HIV testing coverage without co-pay

National HIV/AIDS Strategy (NHAS)

Nation's first comprehensive HIV plan sets 4 goals:

- ◀ Reduce new HIV infections;
- ◀ Increase access to care and improve health outcomes for PLWH
- ◀ Reduce HIV-related health disparities
- ◀ Achieve a more coordinated national response

PrEP Works

iPrEx study shows daily use of PrEP can reduce risk of acquiring HIV by 92% among MSM and transgendered women



Economic Recession
 Health departments experience substantial cuts in state/local government funding

2008

Program Collaboration and Service Integration
 PCSI



Enhanced Comprehensive HIV Prevention Planning (ECHPPP) Demonstration Project *

- ◀ 12 cities with highest AIDS prevalence to implement a range of high-impact prevention activities
- ◀ Multi-agency federal collaboration

2010

High Impact Approach (HIP)

- ◀ Allocating resources based on HIV burden
- ◀ Supports cost-effective interventions that are feasible to implement and can reach large populations
- ◀ De-emphasizes certain EBIs and services

PS11-1113 CBO FOA

- ◀ 34 CBOs implement programs targeting young MSM of color and transgender individuals
- ◀ Focus on testing and linkage to care for newly identified HIV-positive persons
- ◀ De-emphasized certain EBIs

2011

PS12-1201—Health Department FOA

- ◀ Matches core HIV prevention funding with geographic burden of HIV
- ◀ Funding: 30 HDs receive increase; 29 HDs receive decrease

Core prevention activities

- ◀ 75% of funding—HIV testing; prevention with HIV-positive persons; condom distribution; policy initiatives
- ◀ 25% of funding—health education/risk reduction activities for HIV-negative persons

Expanded HIV testing

- ◀ 70% of funding—routine opt-out HIV screening in healthcare settings
- ◀ 30% of funding—targeted HIV testing in non-healthcare settings

Demonstration projects

- ◀ Focus on innovative, high impact prevention interventions and strategies

Care and Prevention in the United States (CAPUS) Demonstration Project *

- ◀ Focus on improving HIV continuum of care outcomes and social determinants of health that affect these outcomes in 8 southern jurisdictions
- ◀ Multi-agency federal collaboration

2012

Community High Impact Prevention (CHIP)

Changes to PS10-1003 CBO FOA

- ◀ Targeted Testing
- ◀ Linkage and re-engagement to care
- ◀ Navigation and support services
- ◀ Referrals to PrEP and PEP

- ◀ Minimum of 75% of total funding to support prevention for HIV-positive persons
- ◀ No more than 25% of total funding to support prevention for HIV-negative persons at high risk.
- ◀ De-emphasized certain EBIs

2013



Using HIV Surveillance Data to Support the HIV Care Continuum

Partnership for Care (P4C) Demonstration Project *

- ◀ Focus on building sustainable partnerships among CDC-funded HDs, and HRSA-funded health centers to improve HIV outcomes along the continuum of care for people living with HIV (PLWH).
- ◀ Multi-agency federal collaboration

Capacity Building Assistance (CBA) for High-Impact HIV Prevention

- 21 organizations provide technical assistance to:
 - ◀ Category A - HDs
 - ◀ Category B - CBOs
 - ◀ Category C - Healthcare organizations
 - ◀ Category D - Coordinating resource centers

CDC Recommendations for HIV Prevention with Adults and Adolescents with HIV

- ◀ Clinical
- ◀ Non-clinical
- ◀ HDs and HIV Planning Groups



CDC Issue Brief on HIV in Southern United States

PS15-1502 CBO Flagship FOA

- ◀ 90 organizations funded, 30 organizations served as the lead of partnership comprised of several organizations
- ◀ Focus on targeted testing, linkage and re-engagement to HIV care, and navigation and essential support services

PS15-1508 Project PrIDE Demonstration Project Targeting MSM and Transgenderer

- ◀ Category A - PrEP implementation
- ◀ Category B - Data 2 Care implementation

PS15-1509 THRIVE Demonstration Project *

- ◀ Collaboration of HDs, CBOs, healthcare clinics, behavioral health, and social service providers
- ◀ Focus on MSM of Color at Risk for and Living with HIV Infection
- ◀ Multi-agency federal collaboration

PS15-1510 Capacity building FOA

- ◀ Provide technical assistance to support 15-1509 THRIVE grantees

CDC's Response

* Funding provided by HHS Secretary's Minority AIDS Initiative Fund (SMAIF)



DATA VISUALIZATION

JENNIFER LYONS

lyonsvisualiation@gmail.com



MA DEPARTMENT OF PUBLIC HEALTH

Monica Bharel, MD MPH
Commissioner of Public Health

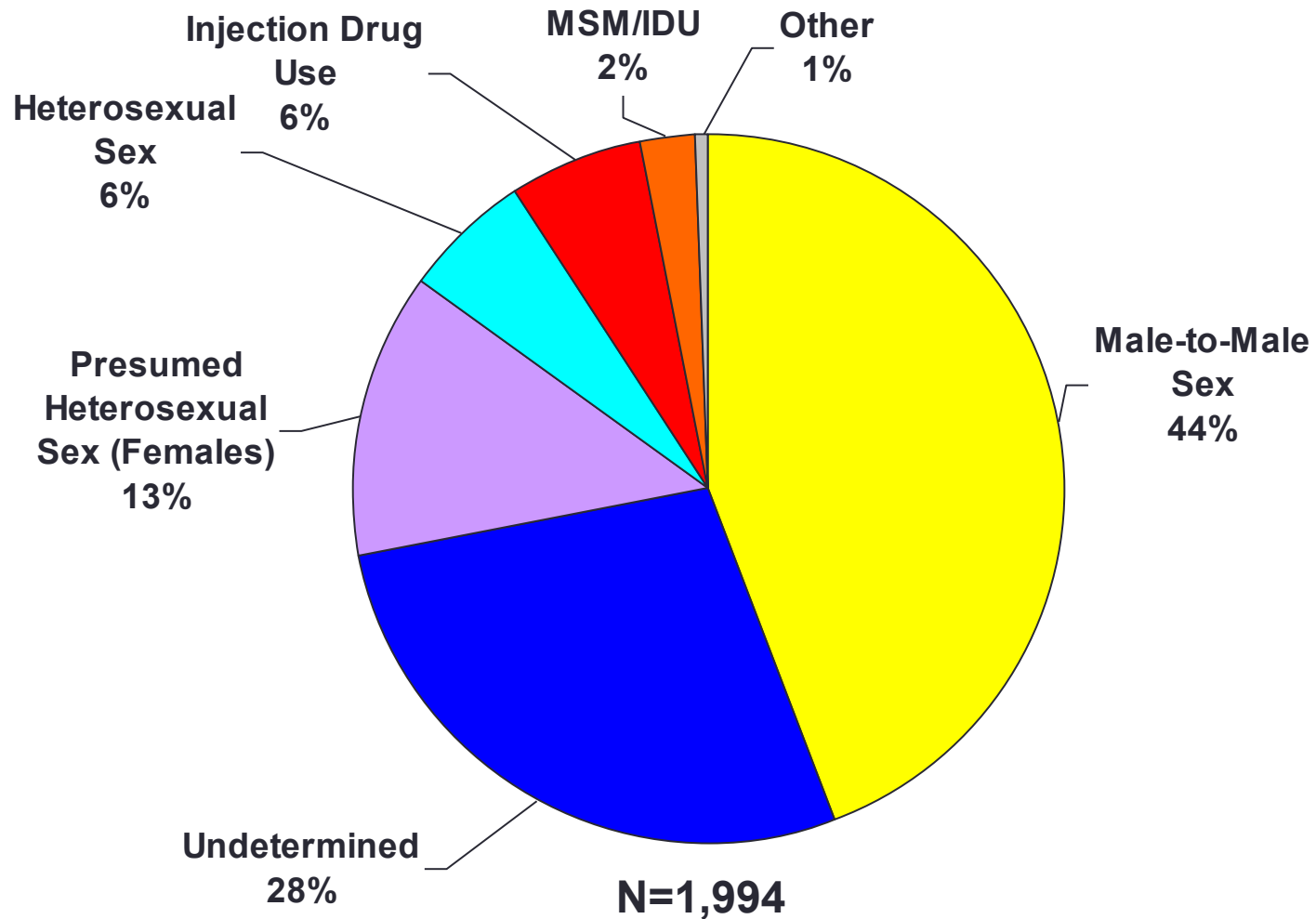


HIV/AIDS IN MASSACHUSETTS

July 2017

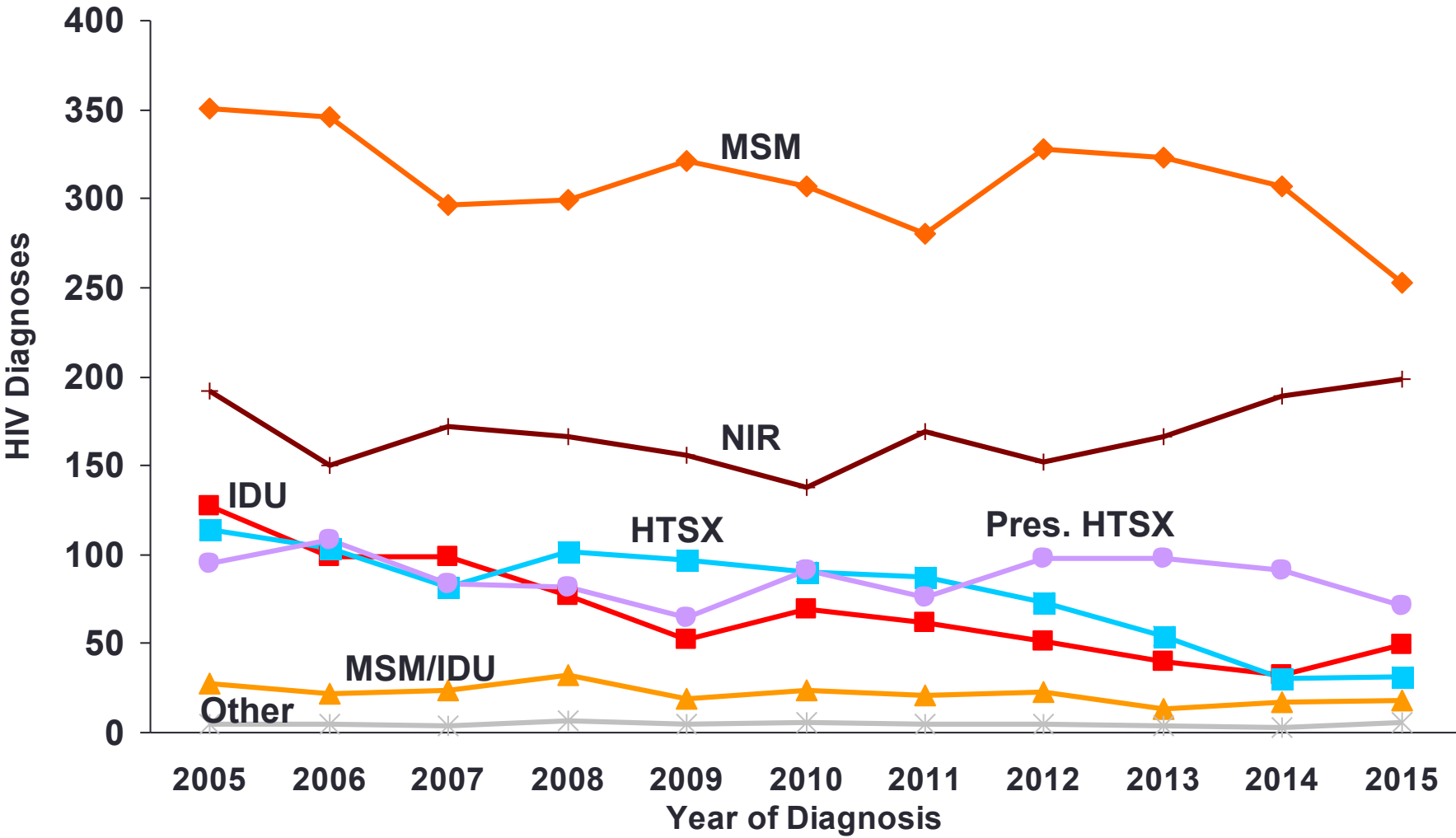


People Diagnosed with HIV Infection by Exposure Mode 2013 - 2015





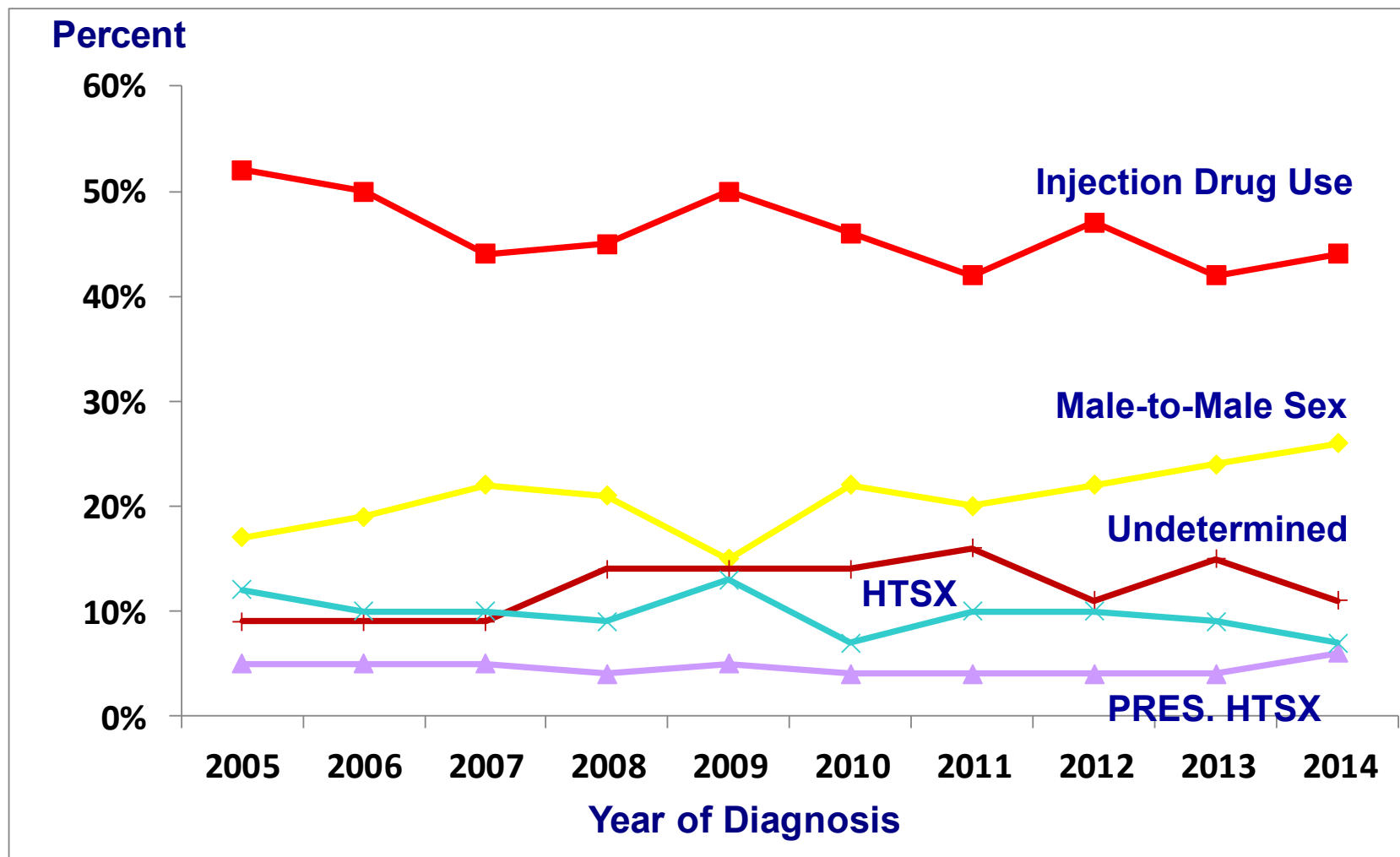
Individuals Diagnosed with HIV Infection by Exposure Mode and Year of Diagnosis: Massachusetts, 2005–2015



Data Source: MDPH HIV/AIDS Surveillance Program; Data as of 1/1/17



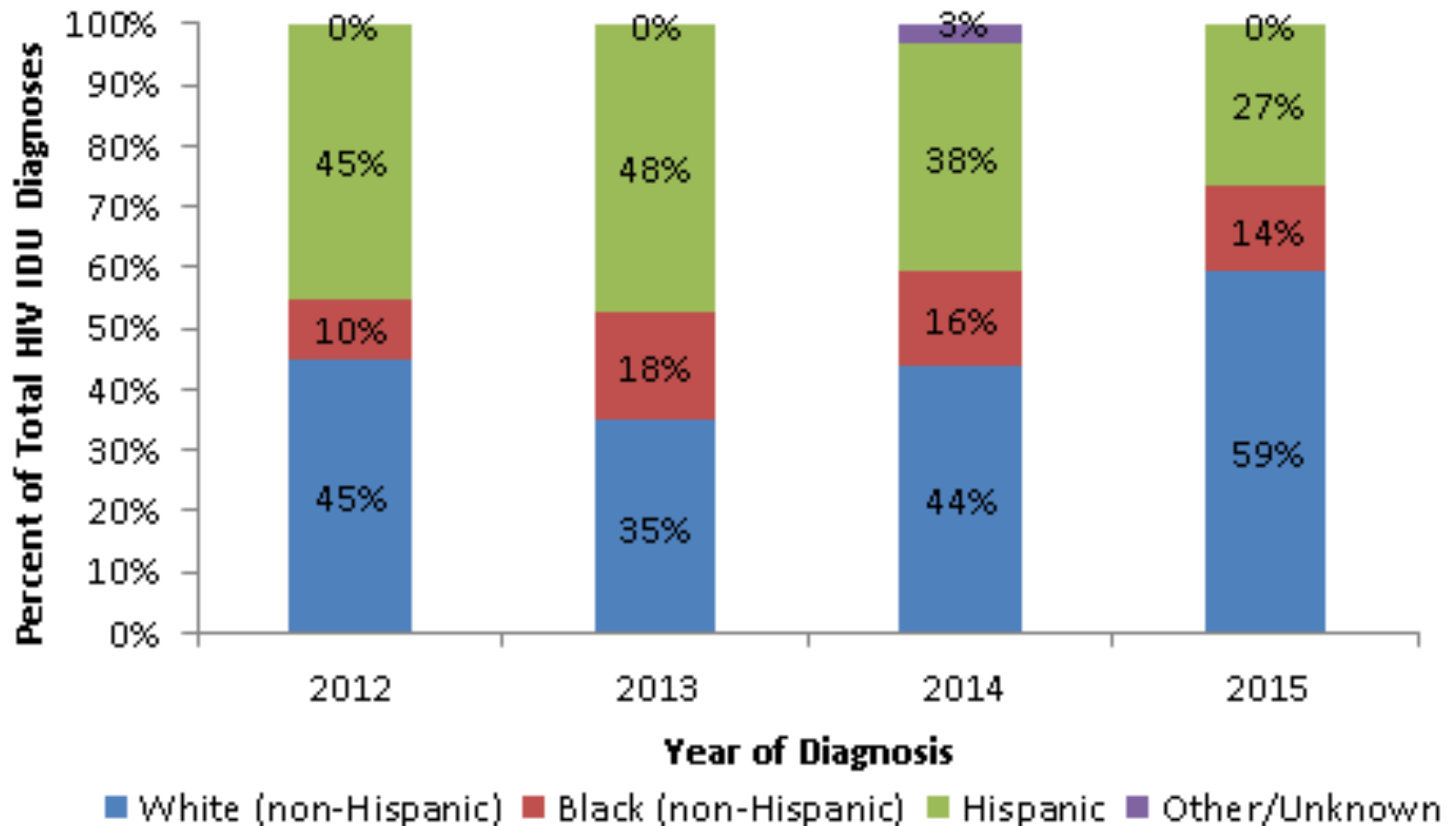
Percentage Distribution of Deaths among People Reported with HIV/AIDS: Selected Exposure Modes & Year of Death: 2005–2014



N=2,732; HTSX = Heterosexual Sex; Pres. HTSX = Presumed Heterosexual Sex

Data Source: MDPH HIV/AIDS Surveillance Program; Data are current as of 3/1/16 and may be subject to change

Proportion of Individuals Diagnosed with HIV Infection Among PWID by Race and Year of Diagnosis: Massachusetts, 2012–2015



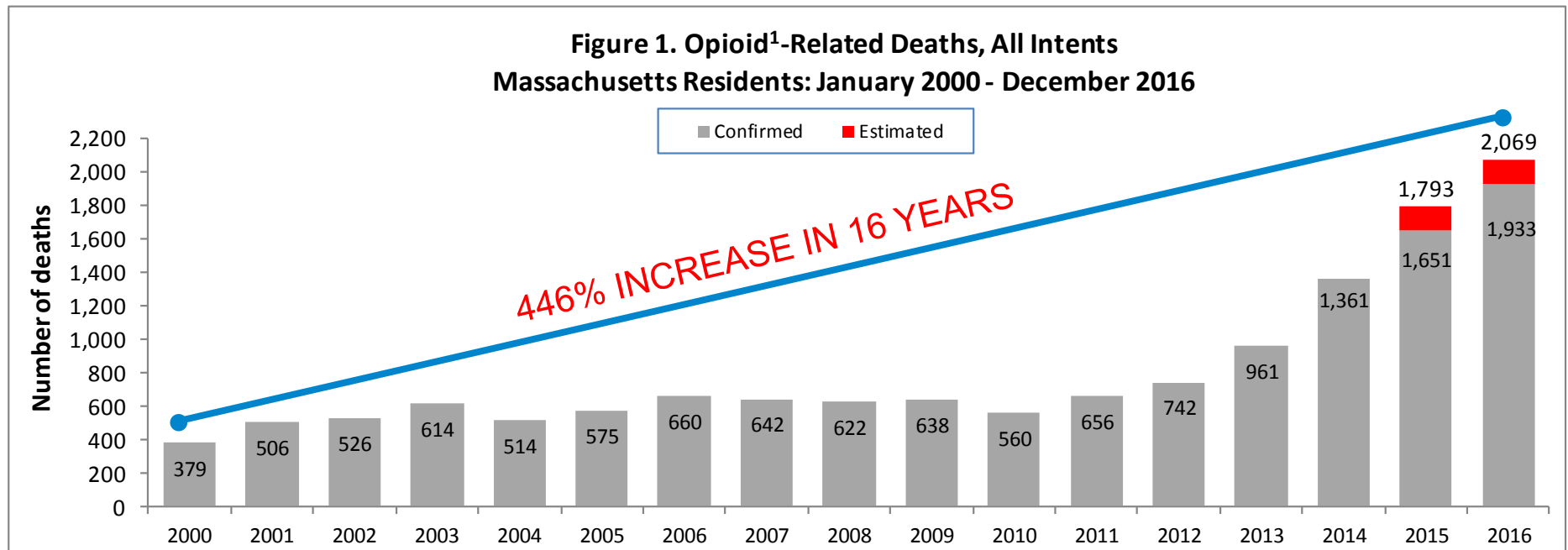


OPIOIDS: USING DATA TO UNCOVER TRUTHS AND GUIDE POLICY

July 2017



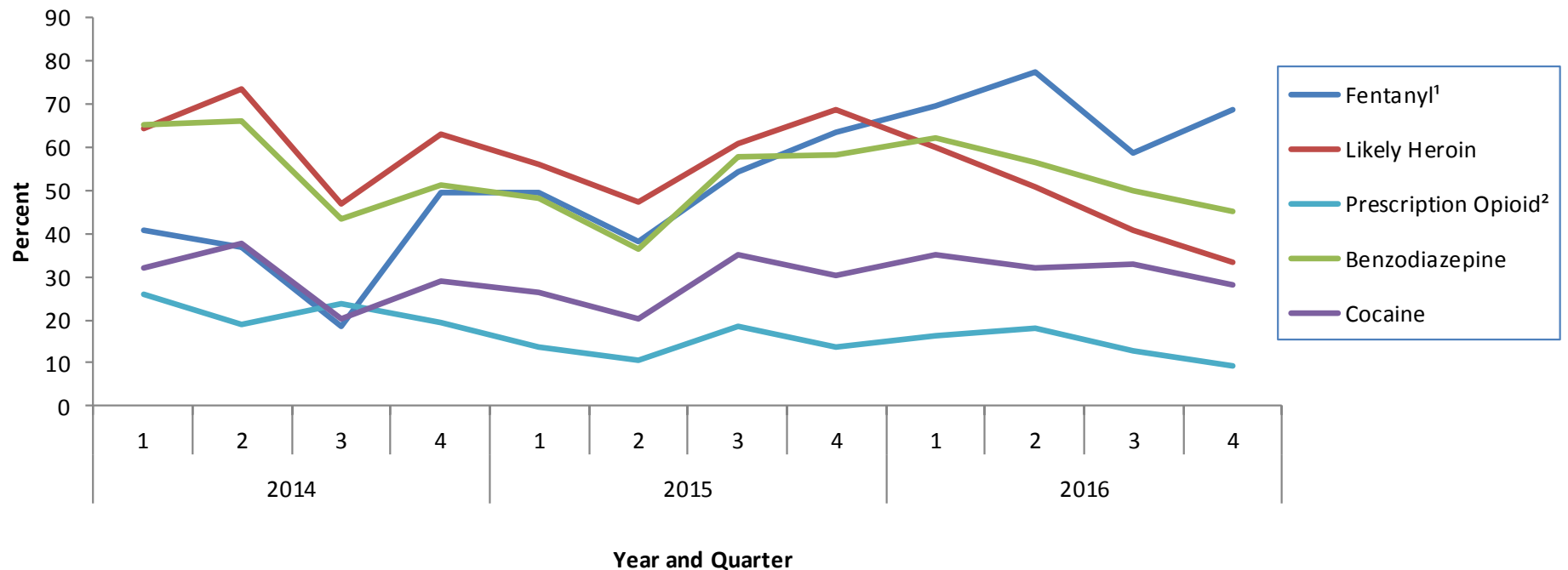
Opioid Related Deaths



**70% OF OPIOID DEATHS IN 2016
HAD THE PRESENCE OF FENTANYL**

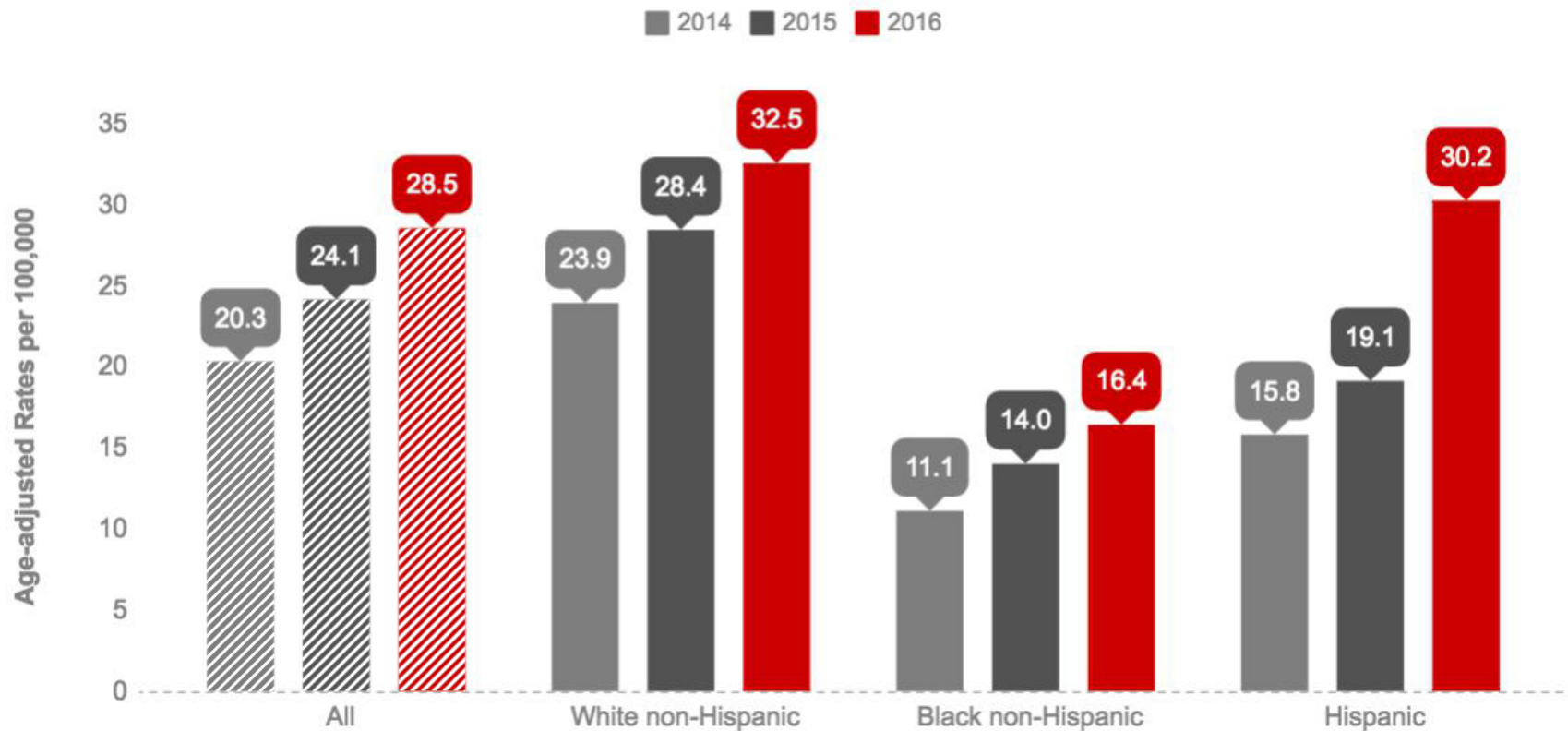
Opioid Related Deaths

**Figure 4. Percent of Opioid Deaths with Specific Drugs Present
MA: 2014-2016**

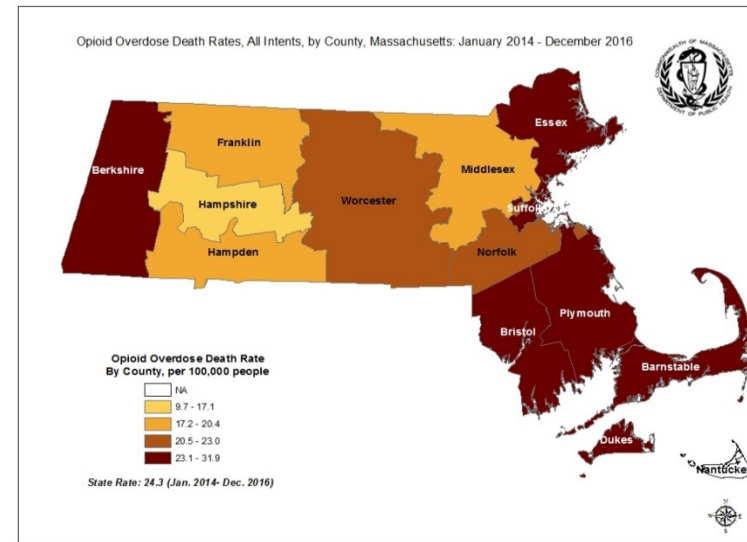
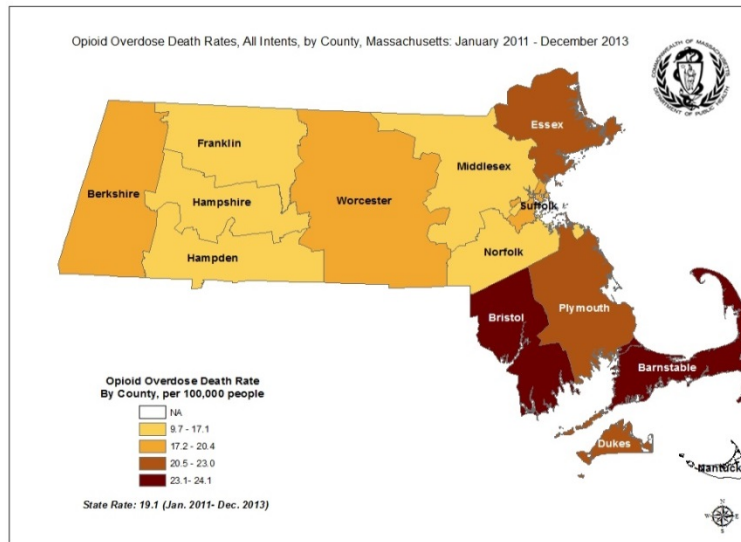


Opioid Related Deaths

Confirmed Opioid-Related Death Rates, All Intents, by Race and Year



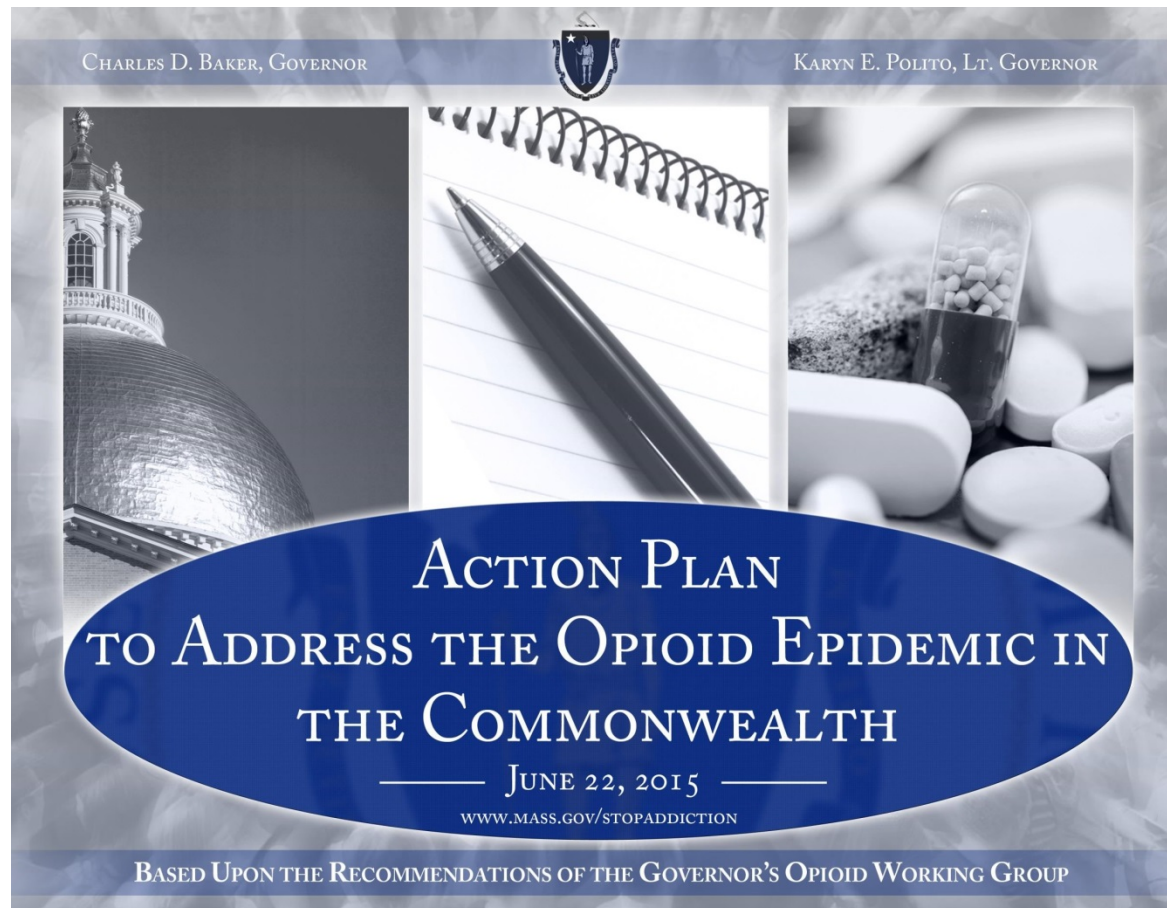
Opioid Overdose Death Rates, All Intent Massachusetts: 2011-2013 vs. 2014 - 2016





Governor Baker's Opioid Working Group

Prevention Intervention Treatment Recovery



CHARLES D. BAKER, GOVERNOR



KARYN E. POLITO, LT. GOVERNOR

ACTION PLAN TO ADDRESS THE OPIOID EPIDEMIC IN THE COMMONWEALTH

JUNE 22, 2015

WWW.MASS.GOV/STOPADDICTION

BASED UPON THE RECOMMENDATIONS OF THE GOVERNOR'S OPIOID WORKING GROUP

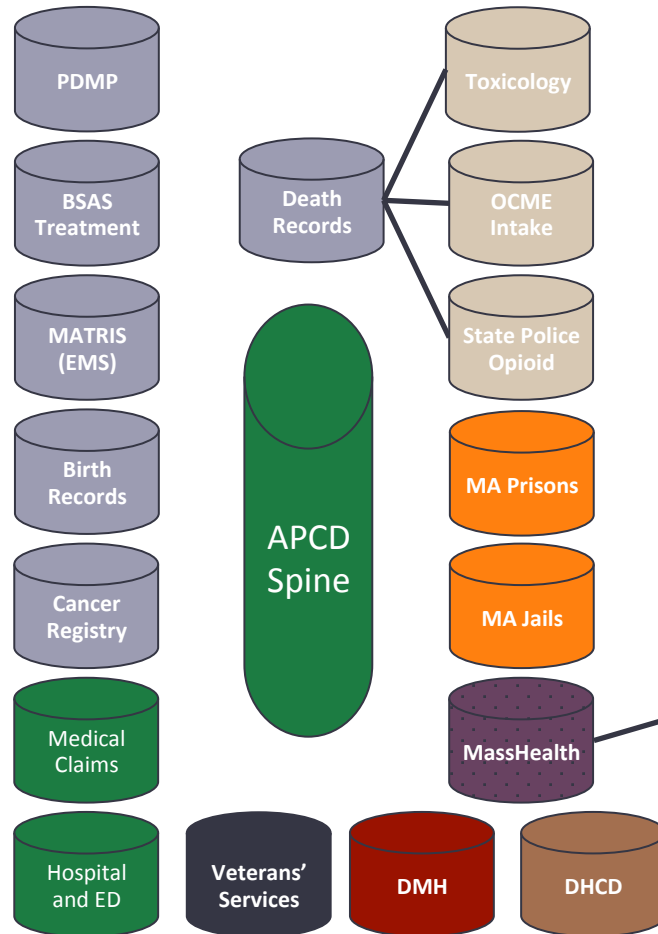


Massachusetts Chapter 55 Legislation

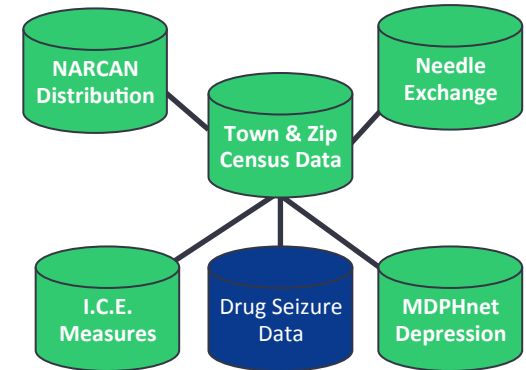
- Signed into law in August 2015
- Requires a comprehensive report to the state legislature and cross-agency collaboration to address 7 specific questions about opioid-related deaths
- Specifies major data sets across government
- Overcomes legal barriers for use of some data
- Work highlighted by Public Health Accreditation Board on their site visit

Chapter 55 Data Mapping

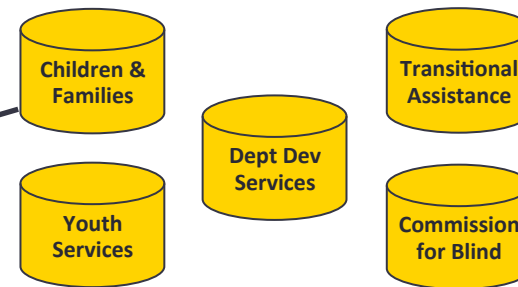
Chapter 55 Data Structure



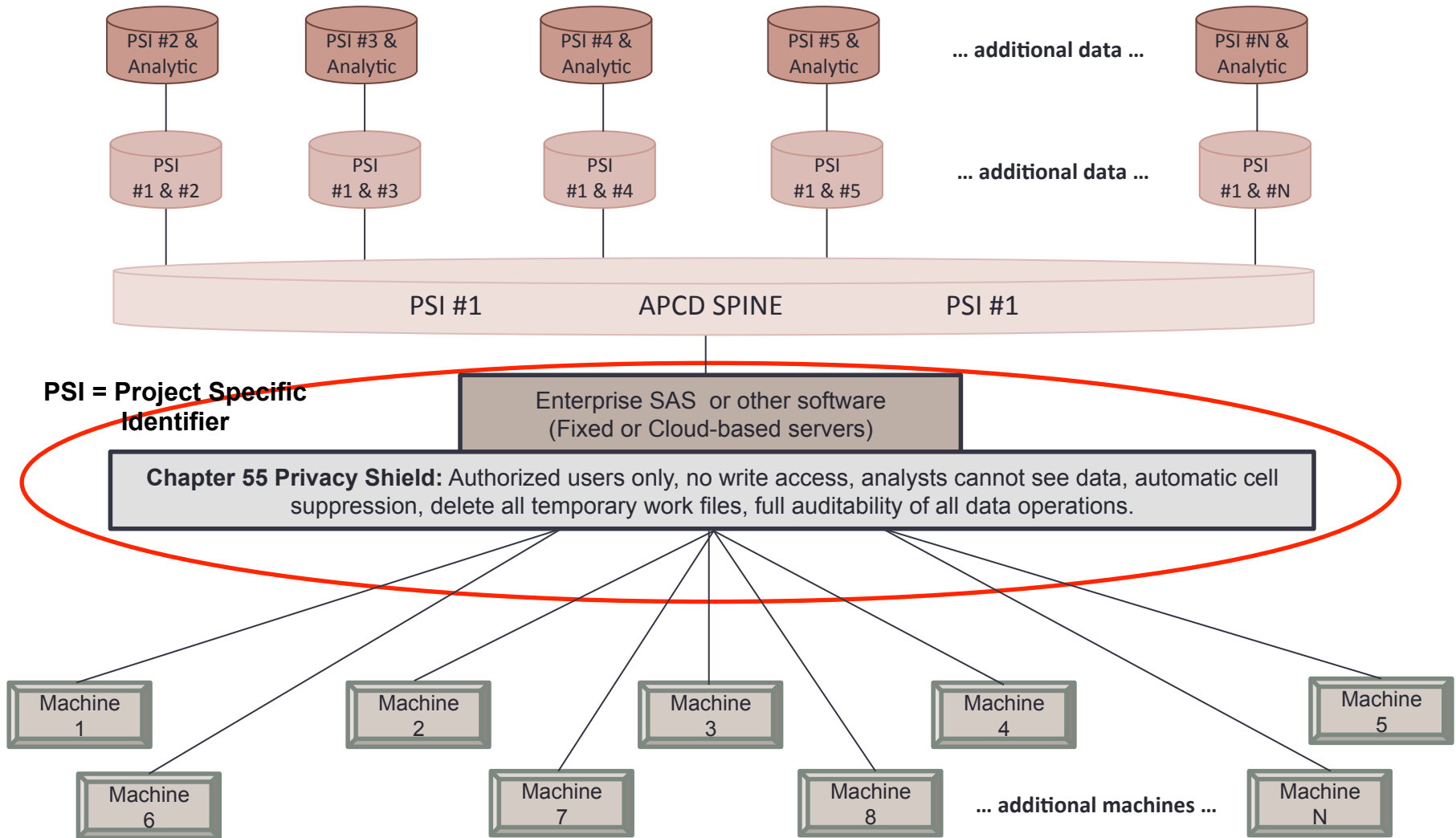
Community Level Data



Service Indicator Flags



Chapter 55: Secure Data Access





Chapter 55: Partners Coming Together

Academic

- Brandeis University
- Boston University
- Brown University
- Harvard Medical School
- Harvard School of Public Health
- Massachusetts College of Pharmacy and Health Sciences
- Massachusetts Institute of Technology
- Northeastern University
- Tufts University
- University of Massachusetts Amherst
- University of Massachusetts Boston
- University of Massachusetts Medical School

Hospitals & Private Industry

- Baystate Health
- Beth Israel Deaconess Medical Center
- Boston Medical Center
- Brigham & Women's Hospital
- Children's Hospital
- GE
- IBM
- Liberty Mutual
- Massachusetts General Hospital
- Massachusetts League of Community Health Centers
- McKinsey & Company
- The MITRE Corporation
- Partners Healthcare
- PwC
- Rand Corporation

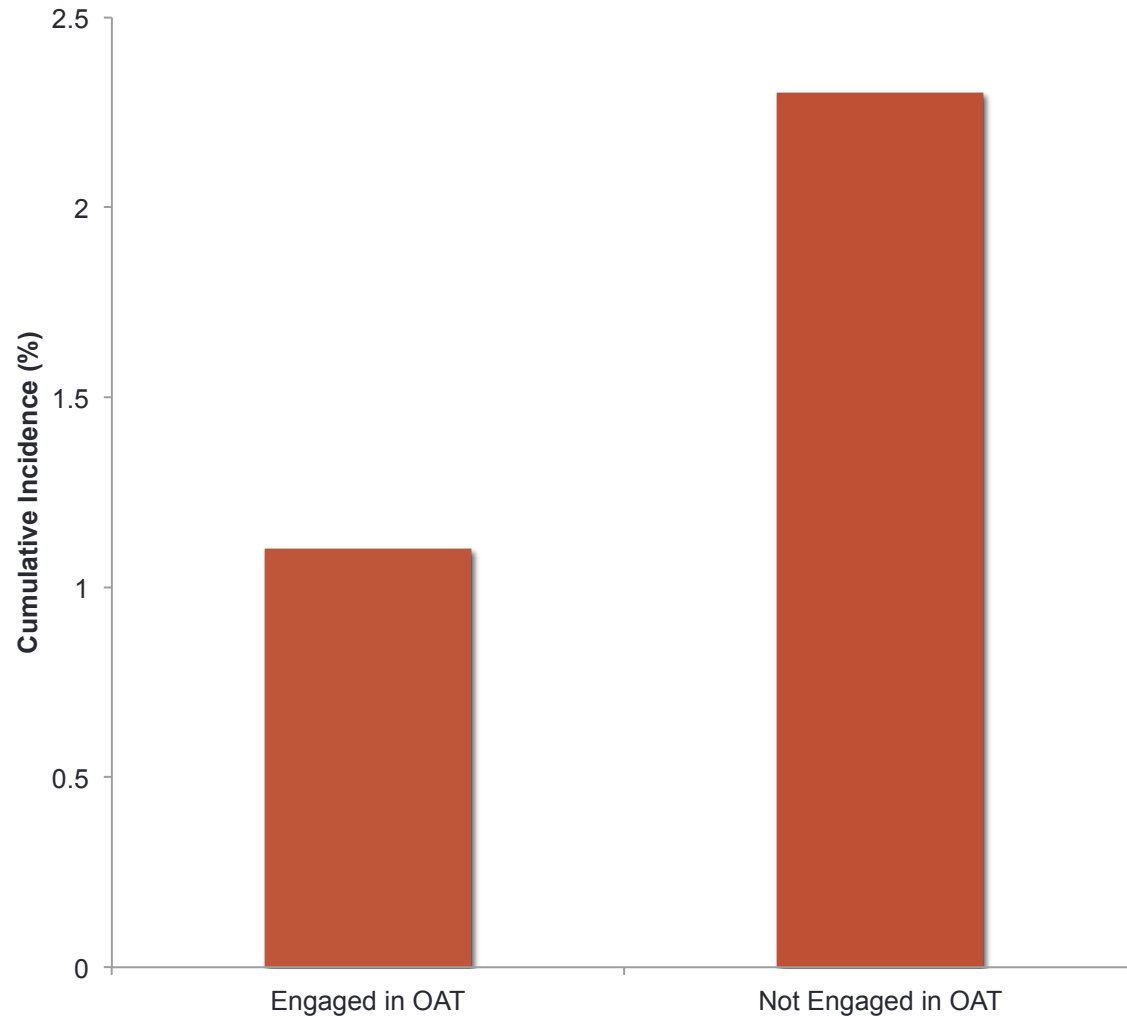
State and Federal Government Agencies

- Boston Public Health Commission
- Center for Health Information and Analysis
- Department of Housing and Community Development
- Department of Mental Health
- Department of Correction
- Department of Public Health
- Executive Office of Health and Human Services
- Executive Office of Public Safety and Security
- Federal Bureau of Investigation
- High Intensity Drug Trafficking Area (NE)
- Health Policy Commission
- Massachusetts Sheriffs' Association
- MassIT
- Office of the Chief Medical Examiner
- State Auditor's Office

Data Mapping: Key finding

- Patients treated with methadone and/or buprenorphine (Opioid Agonist Treatment) following a non-fatal overdose were significantly less likely to die.
- Very few patients (~5%) receive Opioid Agonist Treatment following a non-fatal overdose.

Cumulative Incidence of Opioid-Related Death by Opioid Agonist Treatment Status

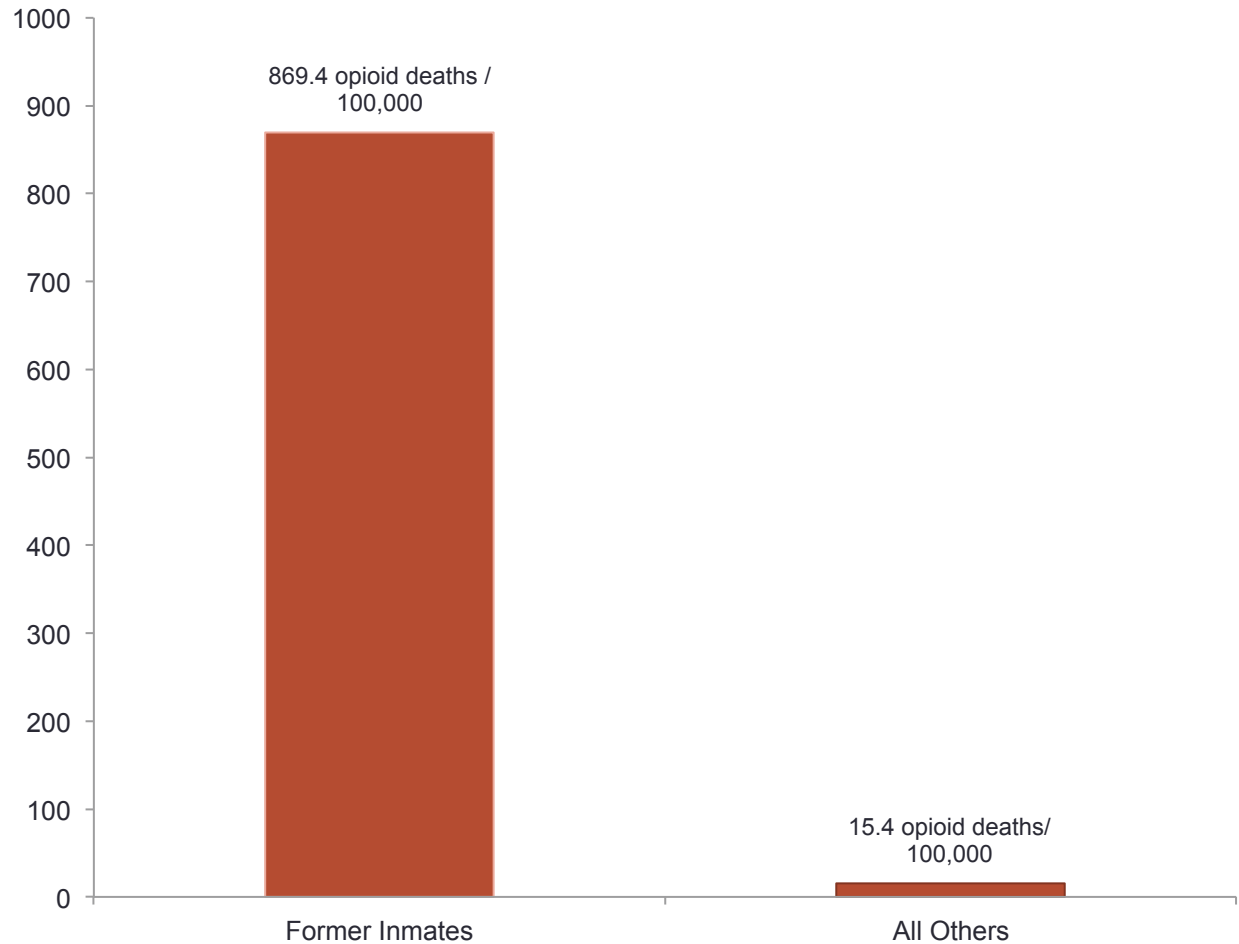




Data Mapping: Key finding

The risk of opioid overdose death following incarceration is 56 times higher than for the general public.

Comparison of Opioid Death Rates Among Former Inmates to the Rest of State (2013 - 2014)



Data mapping– Key Findings

Does an abnormally high amount of prescribing physicians increase a patient's risk of fatal overdose?



Individuals who obtain opioid prescriptions from more than 1 doctor may be at greater risk of death. Based on observed data, the use of 3 or more prescribers is associated with a 7-fold increase in risk of fatal opioid overdose.

ANALYTIC QUESTION

PRELIMINARY FINDING

Does the addition of benzodiazepines to opioids increase the risk of fatal opioid overdose relative to taking opioids alone?

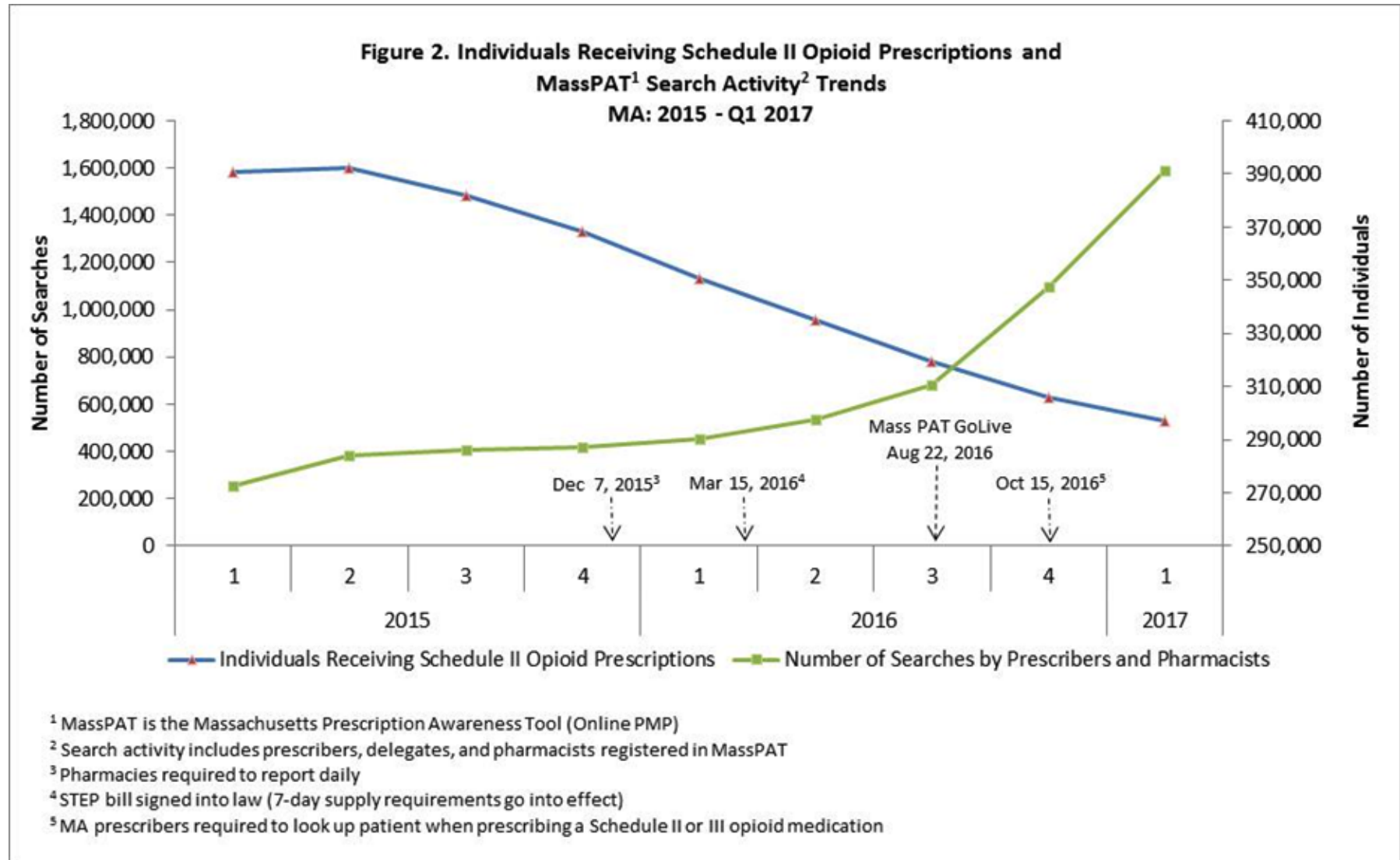


Preliminary findings support the hypothesis of increased risk of fatal overdose associated with concurrent use of opioids and benzodiazepines.

Based on observed data, the use of benzodiazepines concurrent to opioids is associated with a 4-fold increase in risk of fatal opioid overdose.



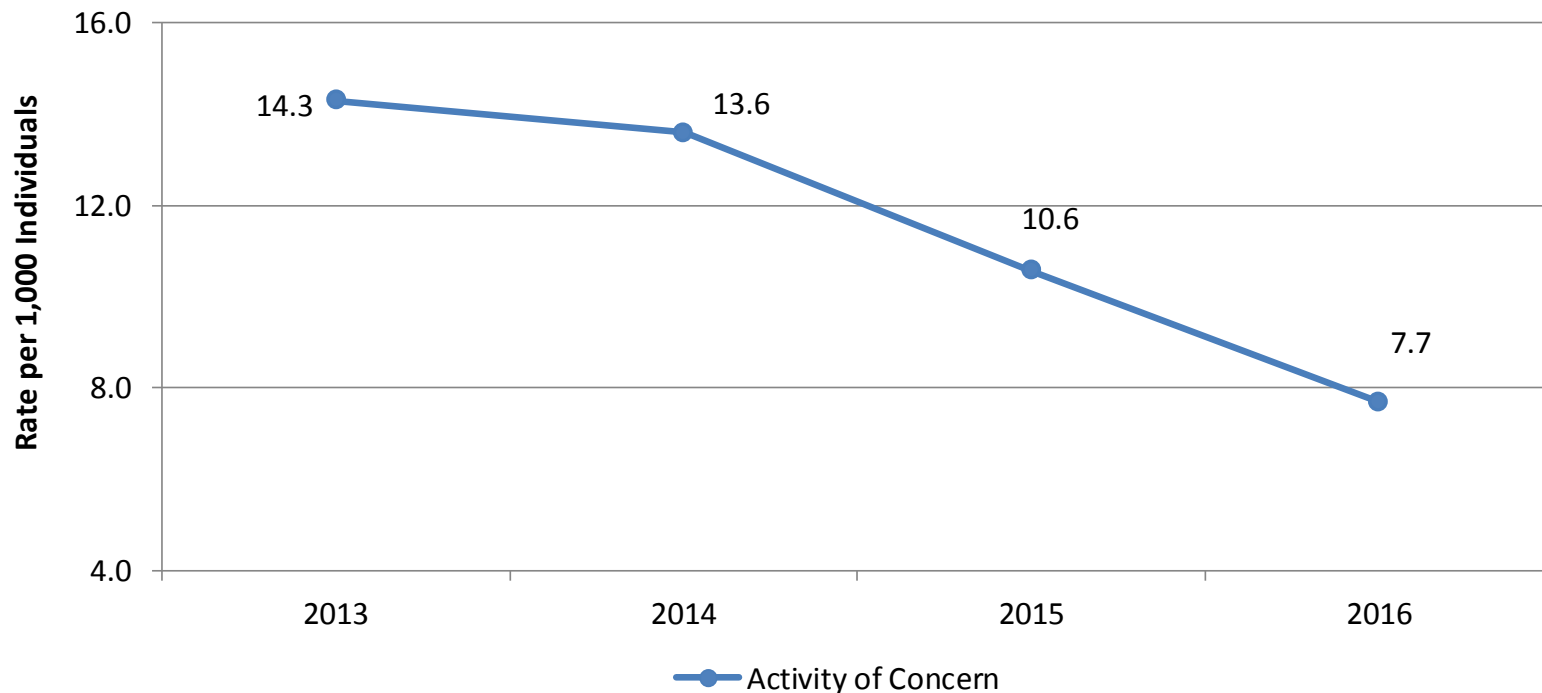
PMP activity trends





PMP activity trends

**Figure 3. Rate¹ of Individuals with Activity of Concern² in MA³
2013–2016**



¹ Rates of individuals with activity of concern are based on the population of individuals who have received one or more Schedule II opioid prescriptions.

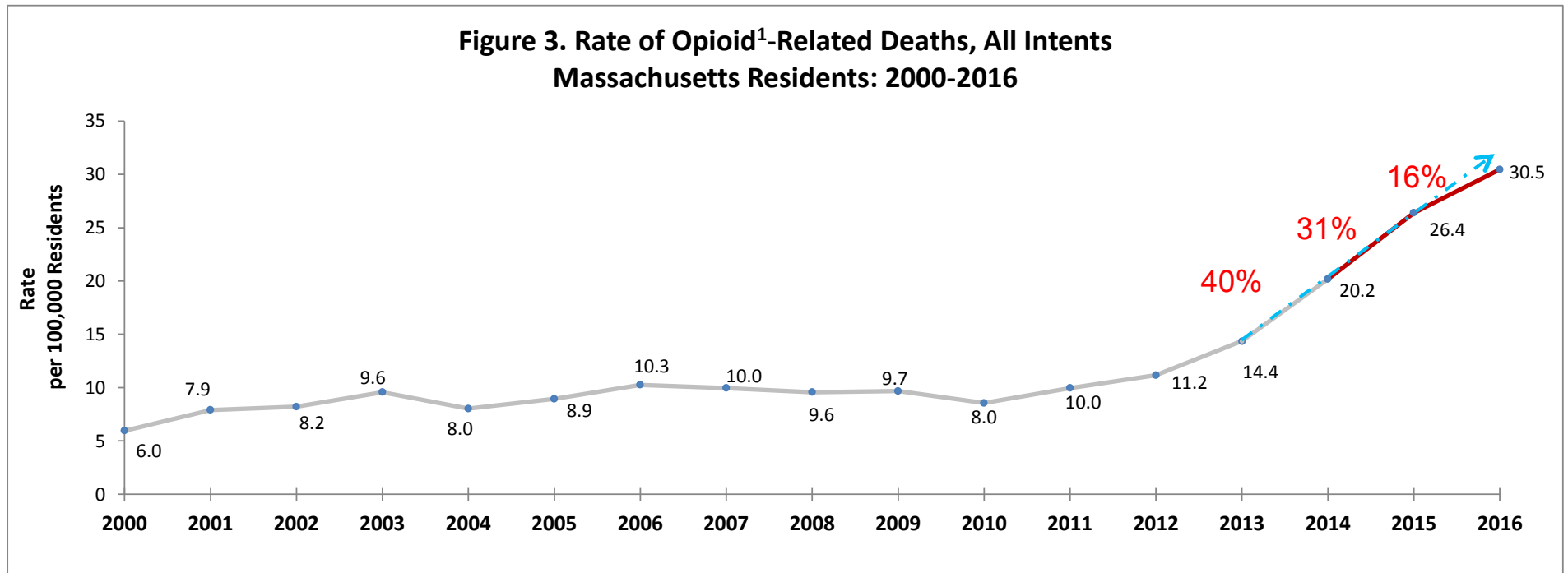
² "Activity of Concern" is defined as an individual who received prescriptions for one or more Schedule II opioid drugs from four or more different prescribers and had them filled at four or more pharmacies during the specified time period.

³ Activity of concern rates include only MA Residents



Opioid Related Deaths

Figure 3. Rate of Opioid¹-Related Deaths, All Intent
Massachusetts Residents: 2000-2016





Data visualization of findings from Chapter 55 Report

<http://www.mass.gov/chapter55/>

A screenshot of a web application titled "THE MASSACHUSETTS OPIOID EPIDEMIC". The main heading is "OPIOID EPIDEMIC" in large white letters on a black background. Below it, the subtitle reads "A data visualization of findings from the Chapter 55 report". To the right of the text is a 3D ball-and-stick molecular model of a complex organic molecule. At the bottom, a blue navigation bar contains the following links: Home, Intro, Chapter 55, Addiction, Substance Use, Demographics, and The Future.

A Deadly Problem

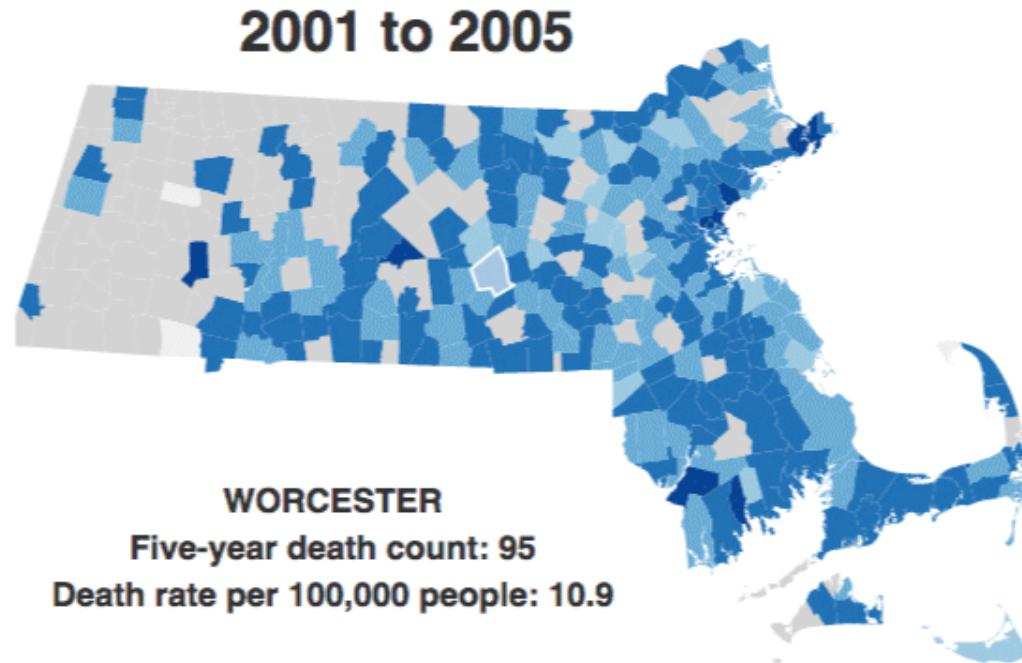
Massachusetts is currently experiencing an epidemic of opioid-related overdose and death.

These overdoses are driven by the underlying chronic disease of opioid addiction or opioid use disorders. People with opioid addiction are at high risk of overdose and death.

Opioid-related deaths in the state were more than four times higher in 2015 than in 2000. This recent rate of increase is several times faster than anything seen here before. In 2013–2014 alone, opioid-related deaths occurred in two-thirds of the cities and

Opioid map – Chapter 55 Visualization

Chapter 55
website
allows for
town-by-town
analysis



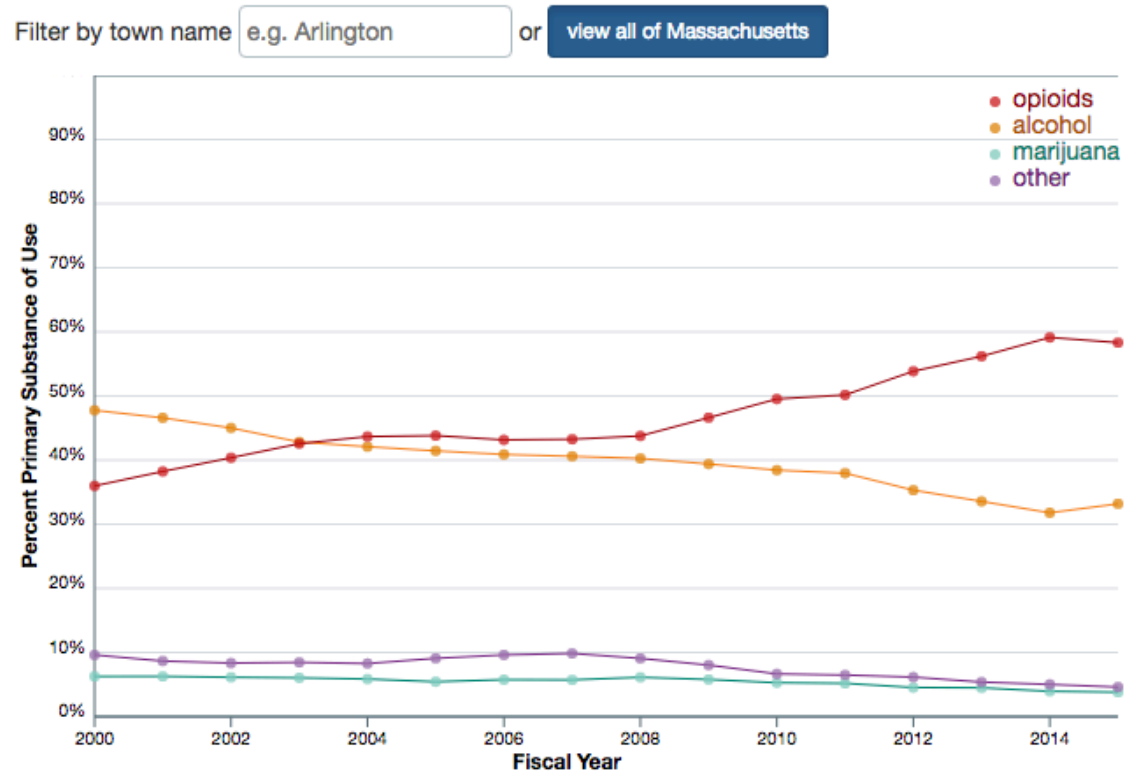


Chapter 55 Visualization

Adding
interactive
elements to
help localize
the epidemic

Primary Substance of Use When Entering Treatment by Town^{9,10,11,12,13}

At admission, clients identify a primary substance of use for which they are seeking treatment. Below, view the changes in the percentage of primary substances identified at admission from 2000 to 2015.



[View the dataset powering this visualization.](#)

Sources: [Massachusetts Bureau of Substance Abuse Services](#), [Massachusetts Department of Public Health](#)

Connecting data with a story...



The opioid epidemic won't be solved overnight, and there's no easy solution to make this problem disappear. However, there are signs of hope and a turning tide.

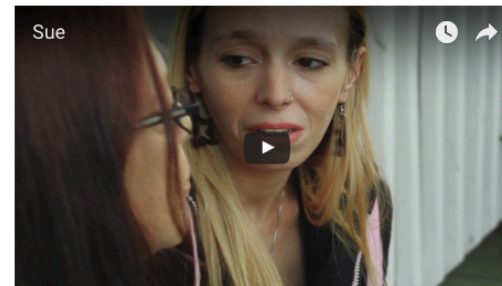
The state has recently taken a number of important steps to address the crisis. From campaigns aimed at shifting the culture around how the public views addiction, to giving our health care professionals the tools they need to responsibly prescribe opioids and monitor prescriptions, Massachusetts is working to end the epidemic.

While there is still a lot to do, findings from the Chapter 55 report have helped elected officials and public health leaders determine what should be done next.

Recent Steps Taken

[What to Do Next](#)

- **Stopping Stigma** — Shifting the way that people view addiction and individuals with substance use issues is a top priority. DPH launched the



Opioid Addiction and Use Resources

- Massachusetts Substance Abuse Helpline
(800) 327-5050
- Substance Use Treatment Services Locator →
- Prescription Dropbox Locations →
- Parents: Talk to Your Kids about Opioids →



THANK YOU & QUESTIONS

Questions



HIV Health Improvement Affinity Group

Thank you for participating in today's webinar! Please complete the evaluation after exiting the webinar.

