Moderator

Rachel Yalowich, Project Director, National Academy for State Health Policy
Logistics for the Webinar

• If you are unable to listen to the webinar through your computer speakers, please use your phone:
  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

Make Change

Illuminate Findings

Communicate Need

Efficiency

Funding

Data Driven Decisions
Access to space must be a national priority.
VISUALIZATION PROCESS

1. Build it
2. Break it down
3. Emphasize your story
VISUALIZATION PROCESS

1. Build it
2. Break it down
3. Emphasize your story
CHOOSING THE RIGHT CHART

- **Position (Common Scale)**
- **Position (Non-Aligned Scales)**
- **Length**
- **Direction**
- **Angle**
- **Area**
- **Volume**
- **Curvature**
Over the course of the year, sales decreased.
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

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VISUALIZATION PROCESS

1. Build it
2. Break it down
3. Emphasize your story
REDUCE CLUTTER
Of all protein options, most people **dislike tofu**.
GESTALT
Proximity

A VS B
<table>
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<th>Indicators</th>
<th>2014</th>
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<th>Increase</th>
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<td>10,867</td>
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<td>Total Active Contacts</td>
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<td>1,107</td>
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<td>Alumni with active resumes</td>
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<td>+22%</td>
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<td>Students with complete profiles</td>
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<td>4,494</td>
<td>4,105</td>
<td>-10%</td>
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<tr>
<td>Alumni with complete profiles</td>
<td>3,222</td>
<td>3,297</td>
<td>3,407</td>
<td>+4%</td>
<td></td>
</tr>
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</tbody>
</table>
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 schools could not be staffed without a restricted hiring process and that the current 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 6). 10

EFFECTIVENESS OF MATCHES

The match-consent system appears to be facilitating effective matches between teachers and schools. Between 2005 and 2007, the total number of teachers applying for voluntary transfers decreased by approximately 21 percent, from 3,818 in 2006 to 3,115 in 2007. In 2007, just 3 percent of voluntary transfers who were selected for a position at a new school indicated that they intended to apply to transfer again the following year. 10

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. 10

Ultimately, this pattern benefits not only schools and students, but also transferring teachers themselves, whose increasing average salaries rose from year to year (36 percent in 2006, 44 percent in 2007) may be linked to the decreasing size of the transfer pool at teachers and losing matched.

Figure 4

Evidence About New Teachers

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 HOT. Congress must ensure that the Department properly enforces the intent of the law and fills loopholes in these areas, which are discussed below.

Example from Stephanie Evergreen and Jennifer Lyons research on “The Link Between Graphic Design and Actual Report Use”
Focal Point
There is an average in-flow of 8 veterans coming into our homeless system every month.
There is an average in-flow of 8 veterans coming into our homeless system every month.
Continuity
There is an **average** in-flow of **8 veterans** coming into our homeless system every month.
There is an **average** in-flow of **8 veterans** coming into our homeless system every month.
VISUALIZATION PROCESS

1. Build it
2. Break it down
3. Emphasize your story
STRATEGIC TEXT
Parent v. Student Perspectives

- **Eats a well balanced diet**
  - Students: 30%
  - Parents: 35%

- **Is active enough**
  - Students: 70%
  - Parents: 65%

- **Hangs out with nice people**
  - Students: 85%
  - Parents: 80%

- **Will attend college**
  - Students: 95%
  - Parents: 90%

- **Will work during high school**
  - Students: 75%
  - Parents: 70%

*Example from Ann Emery’s Blog*
Surprisingly, students have lower expectations to go to college than their parents have of them.

- Will attend college: 89% (Parents: 85%, Students: 58%)
- Hangs out with nice people: 80% (Parents: 77%, Students: 64%)
- Will work during high school: 68% (Parents: 64%, Students: 38%)
- Is active enough: 54% (Students: 58%)
- Eats a well-balanced diet: 31% (Students: 38%)

Example from Ann Emery’s Blog
Descriptive Title

Active Title
Protein Preferences
Of all protein options, most people dislike tofu.
Protein Preferences

2015 vs. 2016 Program Enrollment by Race

Of all protein options, most people dislike tofu.
Protein Preferences

Of all protein options, most people dislike tofu.

2015 vs. 2016 Program Enrollment by Race

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

Of all protein options, most people dislike tofu.

2015 vs. 2016 Program Enrollment by Race

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

Customer Satisfaction Survey Results
<table>
<thead>
<tr>
<th>Descriptive Title</th>
<th>Active Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein Preferences</td>
<td>Of all protein options, most people dislike tofu.</td>
</tr>
<tr>
<td>2015 vs. 2016 Program Enrollment by Race</td>
<td>2016 enrollment for people of color has increased by 5%.</td>
</tr>
<tr>
<td>Customer Satisfaction Survey Results</td>
<td>Overall, respondents were most satisfied by our organization’s customer service and follow-up.</td>
</tr>
</tbody>
</table>
COLOR
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.
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.
2 out of 10 people receiving our services are women.

vs.

2 out of 10 people receiving our services are women.
Region three **sustained** the usual summer sales slump.
All sales **increased significantly** during the holiday season.
National Autism Indicators Report
Transition into Young Adulthood

Table of Contents
Executive Summary: Where we stand today........................................ 8
Key Findings 2015........................................................................ 13
Youth on the Autism Spectrum: Characteristics at age 17............... 17
What happens to youth with autism as they enter adulthood?
  Transition Planning: Building a bridge to the future.............. 21
  The Services Cliff: Services decreased significantly in young adulthood... 25
What do we know about key outcomes?
  Young Adult Outcomes and Disconnection: The big picture........ 31
  Health, Mental Health and Care: Complex needs.......................... 37
  Postsecondary Education: Few continued beyond high school........ 47
  Employment: Few had jobs after high school................................. 47
  Living Arrangements: Most remained living with parents............ 55
  Social and Community Participation: Some were socially isolated... 59
  Safety and Risk Vulnerability....................................................... 61
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Executive Summary
National Autism Indicators Report

Where we stand
Young adults with autism face many challenges:
- Making, maintaining stable, healthy and safe relationships
- Navigating and interacting with others
- Managing self-care
- Managing medication
- Managing social interactions
- Managing work and housing
- Managing health care
- Managing finances
- Managing stress
- Managing legal issues
- Managing mental health issues
- Managing substance use issues
- Managing safety and risk issues
- Managing crisis and emergency management

Lifespan service and support needs
Autism spectrum disorders (ASD) are a family of lifelong, neurological, and developmental conditions
with varying degrees of intensity and severity. People with ASD may require support in all areas of life,
including social, communication, and self-care skills.

A growing demand for solutions
Autism spectrum disorders are complex and lifelong conditions that require ongoing support and services.
As people with ASD transition into adulthood, they often need additional support to navigate the challenges
of adulthood, including finding and maintaining employment, accessing education and training programs,
managing medical and dental care, and maintaining relationships.

The issues
Lifelong service and support needs
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As people with ASD transition into adulthood, they often need additional support to navigate the challenges
of adulthood, including finding and maintaining employment, accessing education and training programs,
managing medical and dental care, and maintaining relationships.

The Services Cliff
Services decreased significantly
Transition Planning: Building a bridge to the future
Our key findings
- 58% of youth with autism had a transition plan in high school; 43% of those plans were updated or revised.
- 61% of youth with autism had some form of transition services.
- 55% of youth with autism had a transition plan that included employment goals.
- 50% of youth with autism had a transition plan that included postsecondary education goals.

Building a bridge to the future
Our key findings
- 58% of youth with autism had a transition plan in high school; 43% of those plans were updated or revised.
- 61% of youth with autism had some form of transition services.
- 55% of youth with autism had a transition plan that included employment goals.
- 50% of youth with autism had a transition plan that included postsecondary education goals.

Young Adult Outcomes and Disconnection
The big picture

This section provides an overview of young adult outcomes and disconnection, including the challenges faced
by young adults with autism as they transition from high school to adulthood.

Building a bridge to the future
Our key findings
- 58% of youth with autism had a transition plan in high school; 43% of those plans were updated or revised.
- 61% of youth with autism had some form of transition services.
- 55% of youth with autism had a transition plan that included employment goals.
- 50% of youth with autism had a transition plan that included postsecondary education goals.

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

Our key findings
- 58% of youth with autism had a transition plan in high school; 43% of those plans were updated or revised.
- 61% of youth with autism had some form of transition services.
- 55% of youth with autism had a transition plan that included employment goals.
- 50% of youth with autism had a transition plan that included postsecondary education goals.

Example from Evergreen Data's Blog

Breakout session participants
DATA VISUALIZATION

Jennifer R. Lyons • 734-436-1107 • lyonsvisualization@gmail.com

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 Checking 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
   - Handout from Stephanie Evergreen’s Blog (sign up for membership, it’s so worth it!)
   - Twin 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
   - Twin Taylor’s Article on Preattention
   - Color Brewer 2
   - Adobe Color Kuler
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.

“I didn’t know why I couldn’t breathe.”
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.


Cigarette smoking accounts for 1 of every 5 deaths.

You are never too old to quit.

67% of smokers made an attempt to quit.


FOR FREE HELP VISIT CDC.GOV/QUIT
**Goal 1: Decrease incidence of infection with HIV, viral hepatitis, STDs, and TB**

Reduce new diagnoses

<table>
<thead>
<tr>
<th>Rate per 100,000</th>
<th>Current Result</th>
<th>2020 Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>New HIV diagnoses</td>
<td>12.6, 1.26%</td>
<td>9.7, 0.5%</td>
</tr>
<tr>
<td>Acute Hepatitis B</td>
<td>6.7%</td>
<td>0.25%</td>
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<tr>
<td>Acute Hepatitis C</td>
<td>0.1%</td>
<td>0.1%</td>
</tr>
<tr>
<td>TB</td>
<td>3%</td>
<td>1.4%</td>
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**Goal 2: Decrease morbidity and mortality from HIV, viral hepatitis, STDs, and TB**

Increase the proportion of people who are aware of their infection

<table>
<thead>
<tr>
<th>Infection</th>
<th>Current Result</th>
<th>2020 Target</th>
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<tbody>
<tr>
<td>HIV</td>
<td>82.7%, 90%</td>
<td>66%</td>
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<tr>
<td>Hepatitis B</td>
<td>33%</td>
<td>49%</td>
</tr>
<tr>
<td>Hepatitis C</td>
<td>66%</td>
<td>66%</td>
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</table>

**Goal 3: Decrease health disparities across groups affected by HIV, viral hepatitis, STDs, and TB**

Reduce the rate of new HIV diagnoses among Blacks or African Americans

<table>
<thead>
<tr>
<th>Group</th>
<th>Current Result</th>
<th>2020 Target</th>
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</thead>
<tbody>
<tr>
<td>Blacks or African Americans</td>
<td>46</td>
<td>37</td>
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<tr>
<td>Hispanics or Latinos</td>
<td>16.3</td>
<td>10.1</td>
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Increase the percentage of sexually active minority male high school students in major urban centers who have engaged in HIV/STD risk behaviors

<table>
<thead>
<tr>
<th>Years</th>
<th>Women aged 16-20 years</th>
<th>Women aged 21-24 years</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>45.1%</td>
<td>53.2%</td>
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</tbody>
</table>

Increase the percentage of sexually active minority male high school students

<table>
<thead>
<tr>
<th>Years</th>
<th>Sexual minority male high school students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>34.1%</td>
</tr>
</tbody>
</table>

**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)
GOAL 1
Decrease incidence of infection with HIV, viral hepatitis, STDs, and TB
(See all indicators)

Reducing new diseases

2020 TARGET MET

Rate per 100,000

<table>
<thead>
<tr>
<th>Disease</th>
<th>2020 Result</th>
<th>2020 Target</th>
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<tbody>
<tr>
<td>New HIV diagnoses</td>
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<td>1.3</td>
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<td>0.7</td>
<td>0.25</td>
</tr>
<tr>
<td>TB</td>
<td>3</td>
<td>1.4</td>
</tr>
</tbody>
</table>

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

2020 TARGET MET

<table>
<thead>
<tr>
<th>Disease</th>
<th>2020 Result</th>
<th>2020 Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV infection</td>
<td>90%</td>
<td>87%</td>
</tr>
<tr>
<td>Hepatitis B</td>
<td>66%</td>
<td>66%</td>
</tr>
<tr>
<td>Hepatitis C</td>
<td>33%</td>
<td>54%</td>
</tr>
<tr>
<td>TB</td>
<td>3</td>
<td>1.4</td>
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</table>

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

2020 TARGET MET

<table>
<thead>
<tr>
<th>Population</th>
<th>2020 Result</th>
<th>2020 Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blacks or African Americans</td>
<td>37</td>
<td>16.3</td>
</tr>
<tr>
<td>Hispanics or Latinos</td>
<td>10.1</td>
<td>10.1</td>
</tr>
</tbody>
</table>

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

2020 TARGET MET

<table>
<thead>
<tr>
<th>Population</th>
<th>2020 Result</th>
<th>2020 Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women aged 16-20 years</td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td>Women aged 21-24 years</td>
<td>45%</td>
<td>59%</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Population</th>
<th>2020 Result</th>
<th>2020 Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexual minority male high school students</td>
<td>34%</td>
<td>31%</td>
</tr>
</tbody>
</table>
## 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

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Current Result (year)</th>
<th>2020 Target</th>
<th>Progress Status</th>
<th>Trends</th>
<th>Learn more</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce deaths from HIV</td>
<td>18.0 deaths/1,000 persons with diagnosed HIV infection (2012)</td>
<td>15.5 deaths/1,000 persons with diagnosed HIV infection</td>
<td>Trends</td>
<td></td>
<td>Learn more</td>
</tr>
<tr>
<td>Reduce deaths from hepatitis B</td>
<td>1,873 (2013)</td>
<td>1,754</td>
<td>Trends</td>
<td></td>
<td>Learn more</td>
</tr>
<tr>
<td>Reduce deaths from hepatitis C</td>
<td>19,368 (2013)</td>
<td>16,370</td>
<td>Trends</td>
<td></td>
<td>Learn more</td>
</tr>
<tr>
<td>Increase the proportion of persons with HIV who achieve viral suppression</td>
<td>50.1% (2012)</td>
<td>80%</td>
<td>Trends</td>
<td></td>
<td>Learn more</td>
</tr>
<tr>
<td>Increase the proportion of persons with gonorrhea who are treated with an effective antibiotic regimen</td>
<td>80.8% (2012)</td>
<td>90%</td>
<td>Trends</td>
<td></td>
<td>Learn more</td>
</tr>
<tr>
<td>Increase the percentage of people who are aware of their HIV infection</td>
<td>82.7% (2012)</td>
<td>90%</td>
<td>Trends</td>
<td></td>
<td>Learn more</td>
</tr>
<tr>
<td>Increase the percentage of people who are aware of their hepatitis B infection</td>
<td>33% (2009)</td>
<td>66%</td>
<td>Trends</td>
<td></td>
<td>Learn more</td>
</tr>
<tr>
<td>Increase the percentage of people who are aware of their hepatitis C infection</td>
<td>49% (2002-2011)</td>
<td>66%</td>
<td>Trends</td>
<td></td>
<td>Learn more</td>
</tr>
<tr>
<td>Increase the percentage of sexually experienced high school students who have been tested for HIV</td>
<td>22.4% (2013)</td>
<td>24.6%</td>
<td>Trends</td>
<td></td>
<td>Learn more</td>
</tr>
<tr>
<td>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</td>
<td>72% (2012)</td>
<td>79%</td>
<td>Trends</td>
<td></td>
<td>Learn more</td>
</tr>
<tr>
<td>Increase the proportion of young sexually active females who are screened for chlamydia</td>
<td>Women 16-20 yrs: 45%  Women 21-24 yrs: 53.2%</td>
<td>Women 16-20 yrs: 49.6%  Women 21-24 yrs: 58.5%</td>
<td>Trends</td>
<td></td>
<td>Learn more</td>
</tr>
</tbody>
</table>

**Progress Status Symbol Definitions**

- ✔️ Movement toward 2020 target
- 🔄 No change
- ✗ Movement away from 2020 target
### Goal 2: Decrease morbidity and mortality from HIV, viral hepatitis, STDs, and TB

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Previous Data (Year)</th>
<th>Previous Data (Year)</th>
<th>Previous Data (Year)</th>
<th>Previous Data (Year)</th>
<th>Current Data (Year)</th>
<th>Trend</th>
<th>2020 Goal</th>
<th>Progress</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reduce deaths for people diagnosed with...</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Increase the proportion of persons with HIV who achieve viral suppression</strong></td>
<td>46% (2010)</td>
<td>48.5% (2011)</td>
<td>51.6% (2012)</td>
<td>54.7% (2013)</td>
<td></td>
<td>Movement toward 2020 target</td>
<td>80%</td>
<td>Movement toward 2020 target</td>
</tr>
<tr>
<td><strong>Increase the proportion of persons with gonorrhea who are treated with an effective antibiotic regimen</strong></td>
<td>84.6% (2010)</td>
<td>71.4% (2011)</td>
<td>80.8% (2012)</td>
<td>80.1% (2013)</td>
<td></td>
<td>Movement toward 2020 target</td>
<td>90%</td>
<td>Movement toward 2020 target</td>
</tr>
<tr>
<td><strong>Increase the percentage of people who are aware of their infection for people diagnosed with...</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIV</td>
<td>86.2% (2009)</td>
<td>86.9% (2010)</td>
<td>86.4% (2011)</td>
<td>86.8% (2012)</td>
<td>87% (2013)</td>
<td>Movement toward 2020 target</td>
<td>90%</td>
<td></td>
</tr>
<tr>
<td>Hepatitis B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Movement toward 2020 target</td>
<td>66.0%</td>
<td>Movement toward 2020 target</td>
</tr>
<tr>
<td>Hepatitis C</td>
<td>49% (2011)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Movement toward 2020 target</td>
<td>66.0%</td>
<td>Movement toward 2020 target</td>
</tr>
<tr>
<td><strong>Increase the percentage of sexually experienced high school students who have been tested for HIV</strong></td>
<td>22.2% (2011)</td>
<td>22.4% (2013)</td>
<td>17.2% (2015)</td>
<td></td>
<td></td>
<td>Movement toward 2020 target</td>
<td>24.6%</td>
<td></td>
</tr>
<tr>
<td><strong>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</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No change</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Increase the proportion of young sexually active females aged 16-20 who are screened for chlamydia</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Movement toward 2020 target</td>
<td>79.0%</td>
<td></td>
</tr>
<tr>
<td><strong>Increase the proportion of young sexually active females aged 21-24 who are screened for chlamydia</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Movement toward 2020 target</td>
<td>49.6%</td>
<td></td>
</tr>
</tbody>
</table>
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 (28%)
- Self-reported screening decision:
  - Agreed to screening: 50%
  - Refused screening: 40%
  - Unsure/Other: 10%
- Average knowledge about screening: High
  - FY17 Q1

Patient Satisfaction
- Satisfaction with level of involvement:
  - Less involved than desired: 20%
  - Level of involvement matched desire: 50%
  - More involved than desired: 30%
- Satisfaction with decision-making process:
  - Dissatisfied: 25%
  - Neutral: 25%
  - Satisfied: 50%
- Overall satisfaction with the discussion:
  - Dissatisfied: 15%
  - Neutral: 25%
  - Satisfied: 60%

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 making the best screening decision for that patient.

Risk category of eligible patients:
- High Benefit: 35%
- Preference Sensitive: 65%

Example from Natalya Wawrin’s work with the VA in Ann Arbor
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

- Male-to-Male Sex: 44%
- Presumed Heterosexual Sex (Females): 13%
- Heterosexual Sex: 6%
- Injection Drug Use: 6%
- MSM/IDU: 2%
- Other: 1%
- Undetermined: 28%

N=1,994

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

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

Data Source: MDPH HIV/AIDS Surveillance Program; Data as of 1/1/17
OPIOIDS: USING DATA TO UNCOVER TRUTHS AND GUIDE POLICY

July 2017
Opioid Related Deaths

Figure 1. Opioid\(^1\)-Related Deaths, All Intents
Massachusetts Residents: January 2000 - December 2016

Confirmed  
Estimated

446% INCREASE IN 16 YEARS

70% OF OPIOID DEATHS IN 2016 HAD THE PRESENCE OF FENTANYL
Opioid Related Deaths

Figure 4. Percent of Opioid Deaths with Specific Drugs Present

<table>
<thead>
<tr>
<th>Year and Quarter</th>
<th>Fentanyl¹</th>
<th>Likely Heroin</th>
<th>Prescription Opioid²</th>
<th>Benzodiazepine</th>
<th>Cocaine</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014 1</td>
<td>70</td>
<td>60</td>
<td>50</td>
<td>40</td>
<td>30</td>
</tr>
<tr>
<td>2014 2</td>
<td>75</td>
<td>65</td>
<td>55</td>
<td>45</td>
<td>35</td>
</tr>
<tr>
<td>2014 3</td>
<td>80</td>
<td>70</td>
<td>60</td>
<td>50</td>
<td>40</td>
</tr>
<tr>
<td>2014 4</td>
<td>85</td>
<td>75</td>
<td>65</td>
<td>55</td>
<td>45</td>
</tr>
<tr>
<td>2015 1</td>
<td>90</td>
<td>80</td>
<td>70</td>
<td>60</td>
<td>50</td>
</tr>
<tr>
<td>2015 2</td>
<td>95</td>
<td>85</td>
<td>75</td>
<td>65</td>
<td>55</td>
</tr>
<tr>
<td>2015 3</td>
<td>100</td>
<td>90</td>
<td>80</td>
<td>70</td>
<td>60</td>
</tr>
<tr>
<td>2015 4</td>
<td>105</td>
<td>95</td>
<td>85</td>
<td>75</td>
<td>65</td>
</tr>
<tr>
<td>2016 1</td>
<td>110</td>
<td>100</td>
<td>90</td>
<td>80</td>
<td>70</td>
</tr>
<tr>
<td>2016 2</td>
<td>115</td>
<td>105</td>
<td>95</td>
<td>85</td>
<td>75</td>
</tr>
<tr>
<td>2016 3</td>
<td>120</td>
<td>110</td>
<td>100</td>
<td>90</td>
<td>80</td>
</tr>
<tr>
<td>2016 4</td>
<td>125</td>
<td>115</td>
<td>105</td>
<td>95</td>
<td>90</td>
</tr>
</tbody>
</table>

¹ Fentanyl
² Prescription Opioid
Opioid Related Deaths

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

Opioid Overdose Death Rates, All Intents
Governor Baker’s Opioid Working Group

Prevention Intervention Treatment Recovery

Action Plan to Address the Opioid Epidemic in the Commonwealth

June 22, 2015

Based Upon the Recommendations of the Governor’s Opioid Working Group

www.mass.gov/stopaddiction
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

- PDMP
- BSAS Treatment
- MATRIS (EMS)
- Birth Records
- Cancer Registry
- Medical Claims
- Hospital and ED
- Veterans’ Services
- APCD Spine
- Death Records
- Toxicology
- OCME Intake
- State Police Opioid
- MA Prisons
- MA Jails
- MassHealth
- DMH
- DHCD

Community Level Data

- NARCAN Distribution
- Town & Zip Census Data
- I.C.E. Measures
- Drug Seizure Data
- Needle Exchange
- MDPHnet Depression

Service Indicator Flags

- Children & Families
- Dept Dev Services
- Youth Services
- Transitional Assistance
- Commission for Blind
- Commission for Blind

Needle Exchange

Drug Seizure Data

MDPHnet Depression

Transitional Assistance

Commission for Blind
Chapter 55: Secure Data Access

Chapter 55 Privacy Shield: Authorized users only, no write access, analysts cannot see data, automatic cell suppression, delete all temporary work files, full auditability of all data operations.

PSI = Project Specific Identifier

Enterprise SAS or other software (Fixed or Cloud-based servers)
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.
Data Mapping: Key finding

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

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

Figure 2. Individuals Receiving Schedule II Opioid Prescriptions and MassPAT¹ Search Activity² Trends
MA: 2015 - Q1 2017

1 MassPAT is the Massachusetts Prescription Awareness Tool (Online PMP)
2 Search activity includes prescribers, delegates, and pharmacists registered in MassPAT
3 Pharmacies required to report daily
4 STEP bill signed into law (7-day supply requirements go into effect)
5 MA prescribers required to look up patient when prescribing a Schedule II or III opioid medication
PMP activity trends

Figure 3. Rate\(^1\) of Individuals with Activity of Concern\(^2\) in MA\(^3\) 2013–2016

![Graph showing the rate of individuals with activity of concern from 2013 to 2016.](image)

\(^1\) 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 Opioid\(^1\)-Related Deaths, All Intents
Massachusetts Residents: 2000-2016

Rate per 100,000 Residents


6.0 7.9 8.2 9.6 8.0 8.9 10.3 10.0 9.6 9.7 8.0 10.0 11.2 14.4 20.2 26.4 30.5 30.5

40% 31% 40%
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
Chapter 55 website allows for town-by-town analysis.
Adding interactive elements to help localize the epidemic
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.

- **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) 327-5500
- 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.