



Massachusetts Department of Public Health
Bureau of Infectious Disease and Laboratory Sciences (BIDLS)

Outbreak of HIV infection among persons who inject drugs in northeastern Massachusetts: 2015-2018

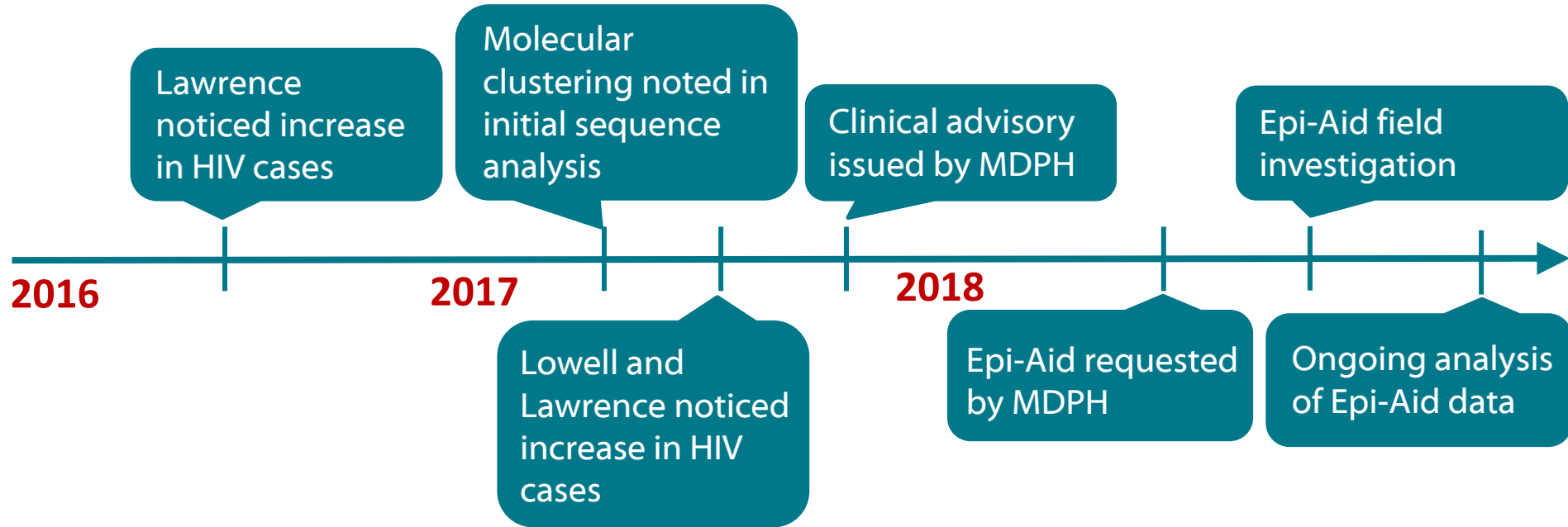
Preliminary findings of the DPH/CDC Epi Aid investigation

**Public Health Council
October 10, 2018**

**Kevin Cranston, MDiv
Assistant Commissioner
Director, BIDLS**

**Alfred DeMaria, Jr., MD
Medical Director/State Epidemiologist (Emeritus)
BIDLS**

Timeline

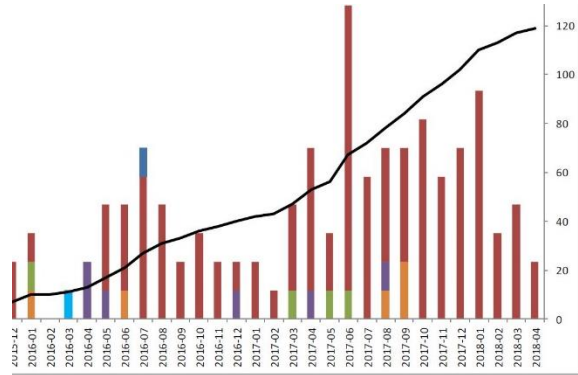


WHY HERE?

WHY NOW?

**WHAT CAN BE
CHANGED TO
REDUCE
INFECTIONS?**

The Investigation



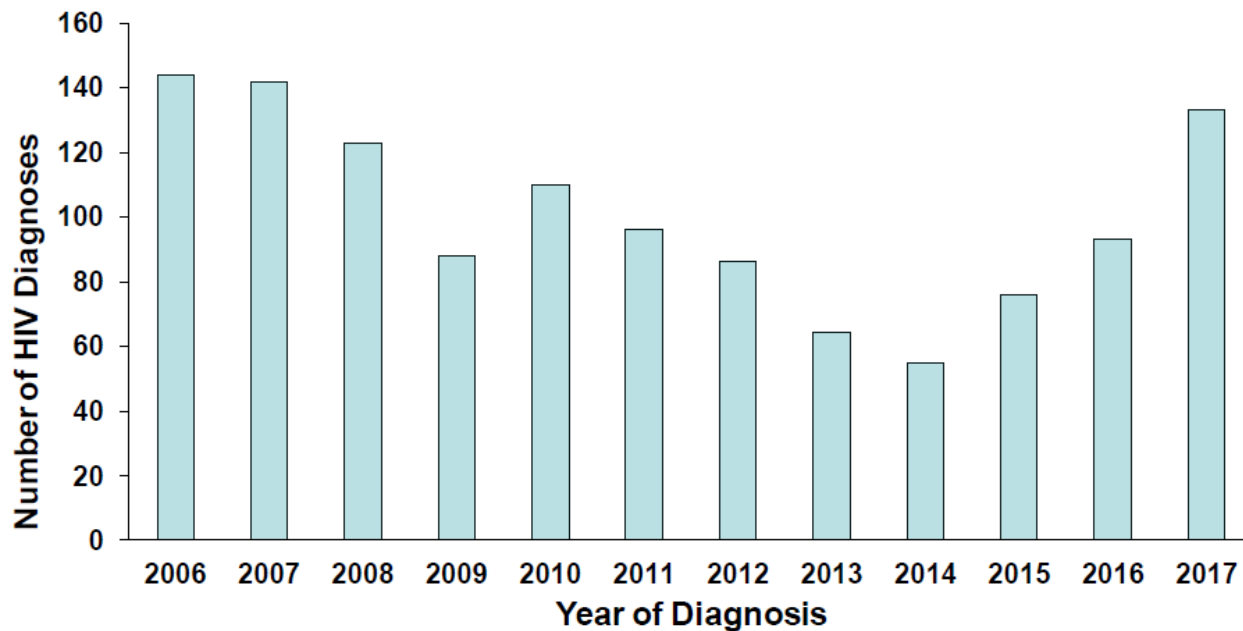
Surveillance

Interviews

Chart Abstraction
and other field work

Findings: Public Health Context

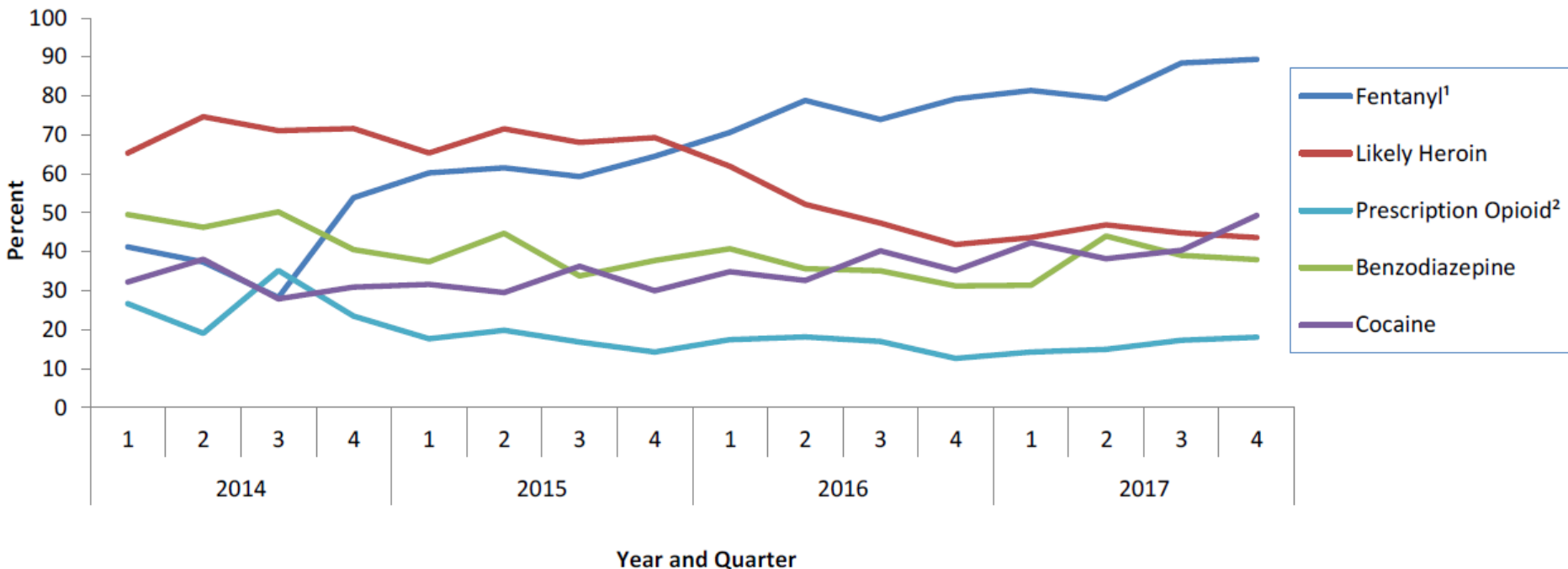
Diagnosis of HIV Infection Among PWID by Year of Diagnosis: Massachusetts, 2006–2017*



Data Source: MDPH HIV/AIDS Surveillance Program; Data as of 05/01/18

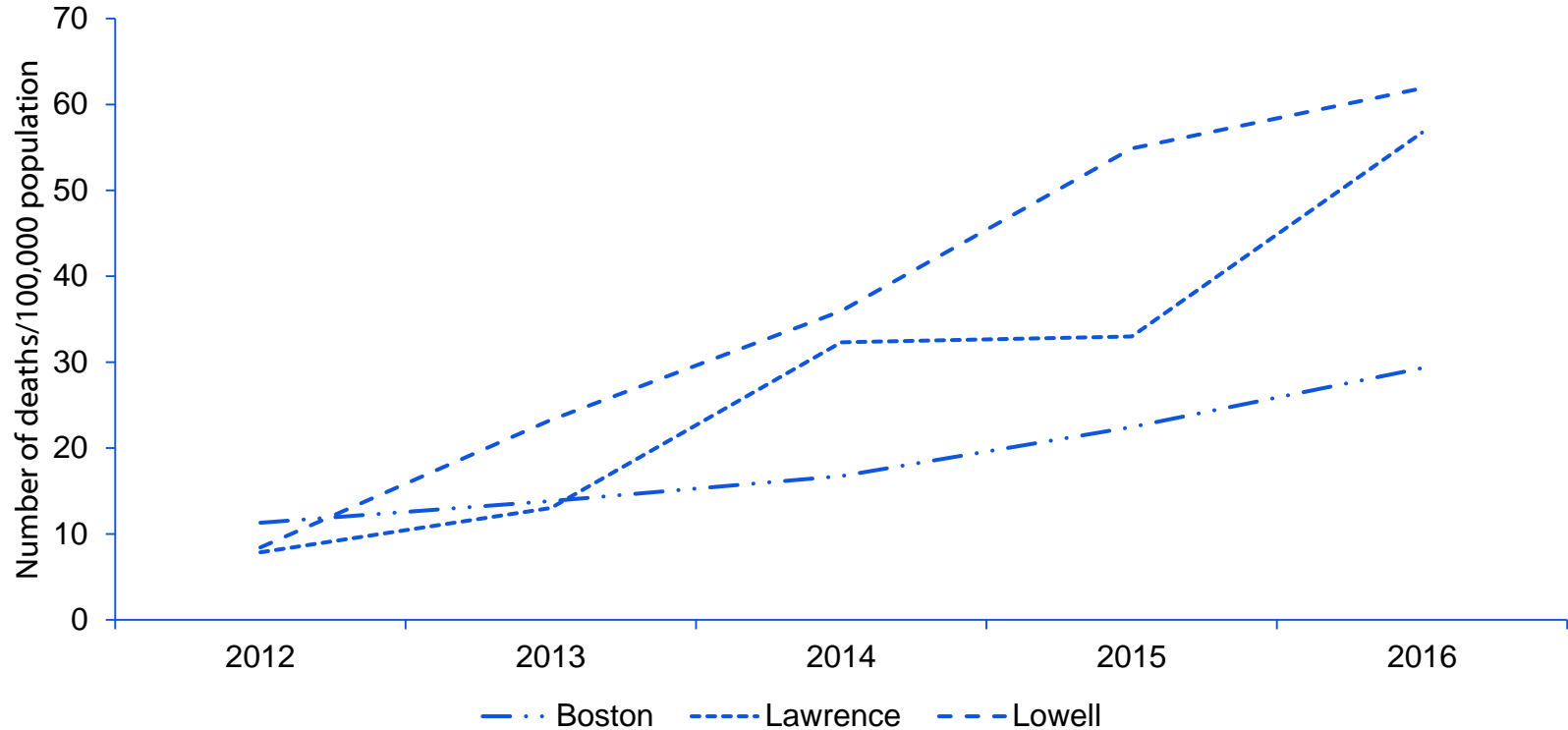
*2017 Data are preliminary and will change.

Percent of Opioid-Related Deaths with Specific Drugs Present MA: 2014-2017



Source: MDPH Data Brief, May 2018

Number of deaths from opioid overdose/100,000 in Massachusetts, 2012–2016



Findings: Epidemiology & Surveillance

The Case Definition

HIV infection diagnosed since 2015 in a PWID who received medical care, resided, or injected drugs in Lowell or Lawrence.

Or

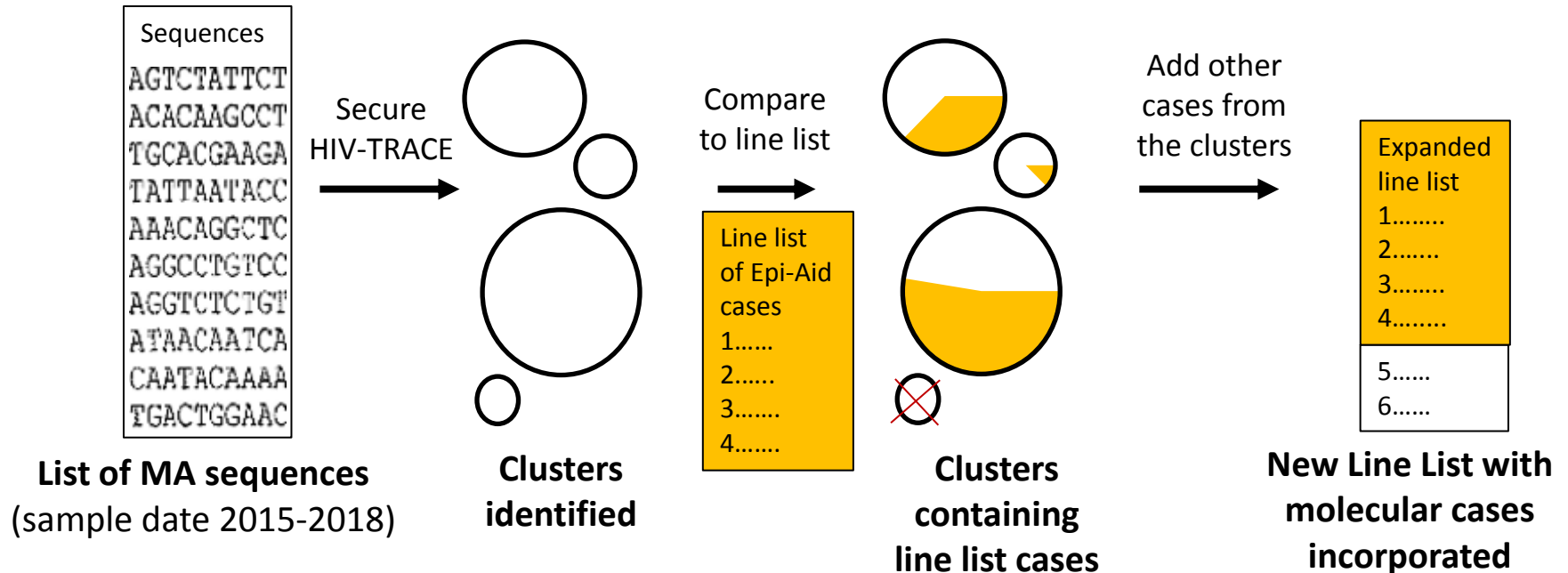
HIV infection in a named injecting or sex partner, or person molecularly linked (at a genetic distance of $\leq 1.5\%$) to a case meeting temporal and geographic criteria.

Molecular HIV Surveillance

- **HIV mutates over time**
- **Molecularly linked cases have very similar viral sequences**
- **People infected with very similar viruses are in a common network with recent transmission**
 - Cannot determine directionality or direct transmission between two individuals

How are Molecularly Linked Cases Identified?

- Analysis of nucleotide sequences identifies clusters of sequences indicative of “recent, rapid” transmission



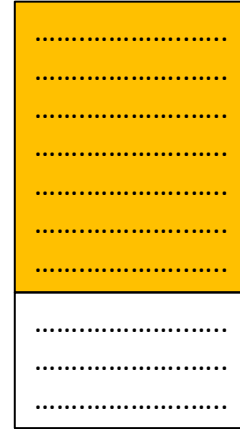
Molecular Analysis Linked Many New Cases



86 cases
(epi cases only)

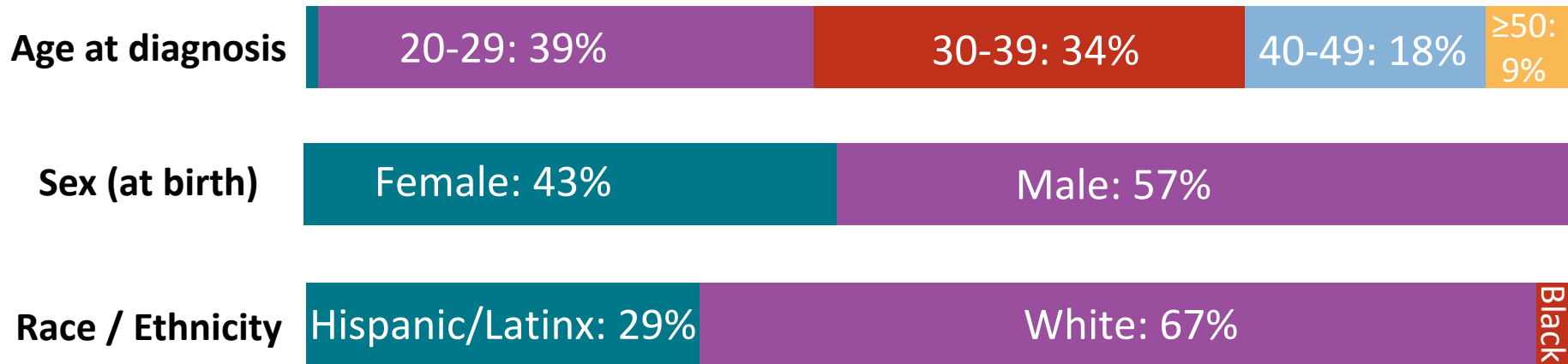


Molecular
analysis

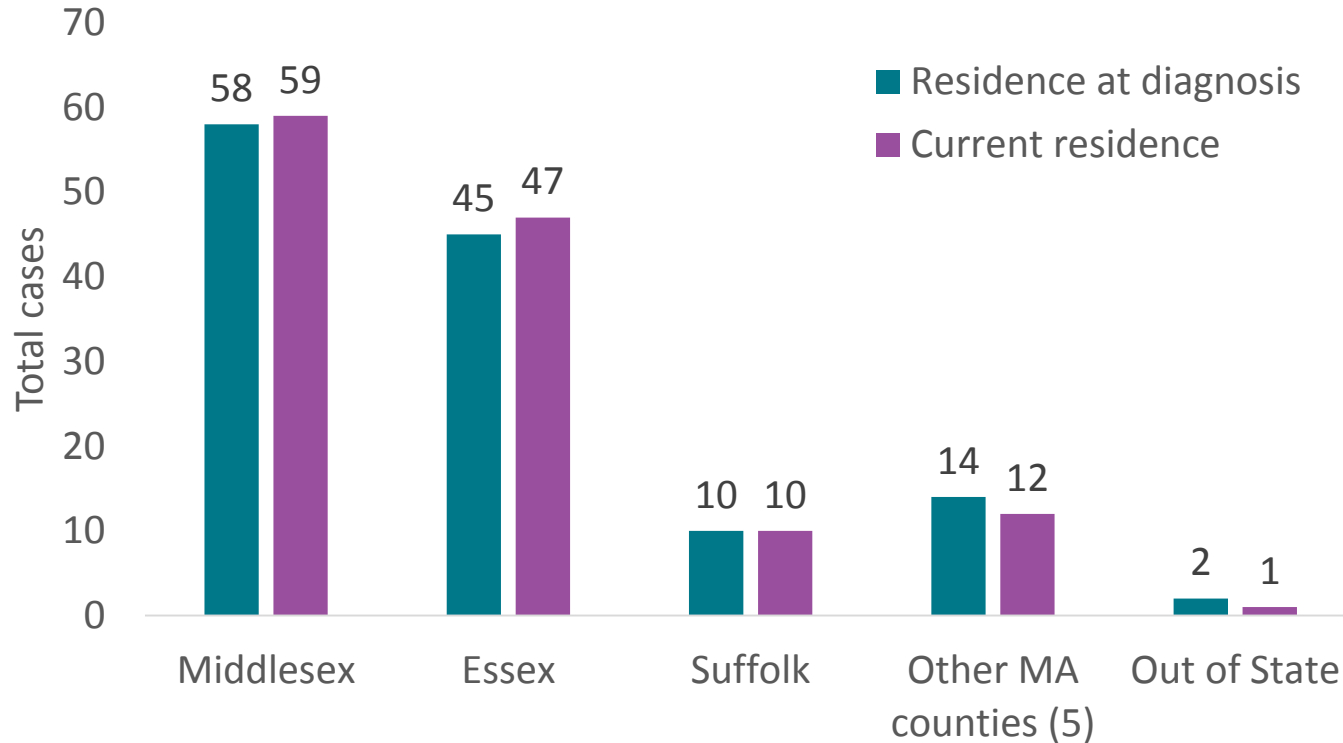


129 cases
(epi and molecular cases)

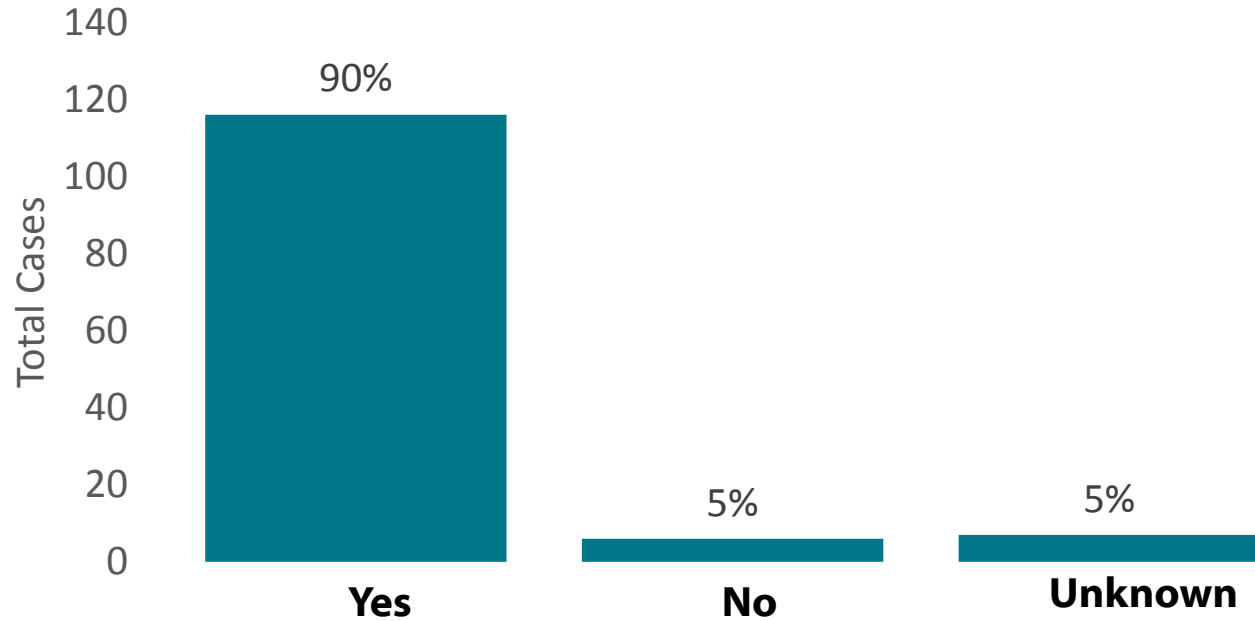
Case Demographics



Case County of Residency



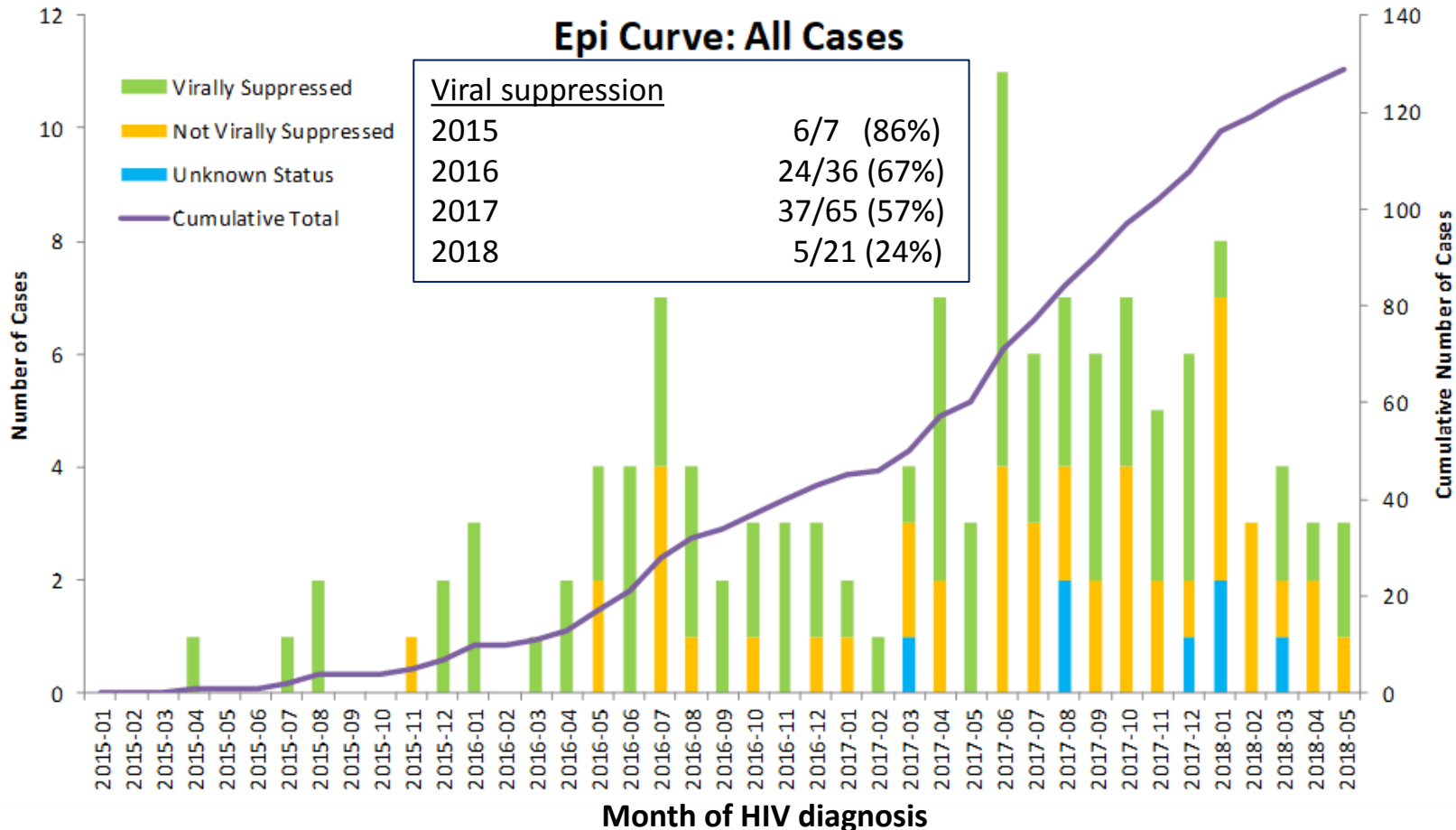
Current or Past Hepatitis C Infection



Clinical and Lab Characteristics:

- 5 cases (4%) with AIDS within 6 months of HIV diagnosis
- Median initial CD4 (range): 550 (1-1470)
 - Higher than statewide average

Epi Curve: All Cases



Case Characteristics

- **Total cases: 144** (as of 10/1/2018, excluding pre-2015 cases)
- **78% of total cases in the investigation are molecularly linked**
 - 22% Molecular-only (N=31)
 - 51% Epi and Molecular (N=74)
 - 27% Epi-only (N=39)
- **Epi-linked and molecularly-linked cases have key similarities**
 - Exposure mode (IDU), County (Middlesex and Essex), HCV co-infection



Findings: Interviews

Who We Interviewed

Purposeful Sampling

Living in Lowell or Lawrence

Injection drug use within 1 year

34 Interviews

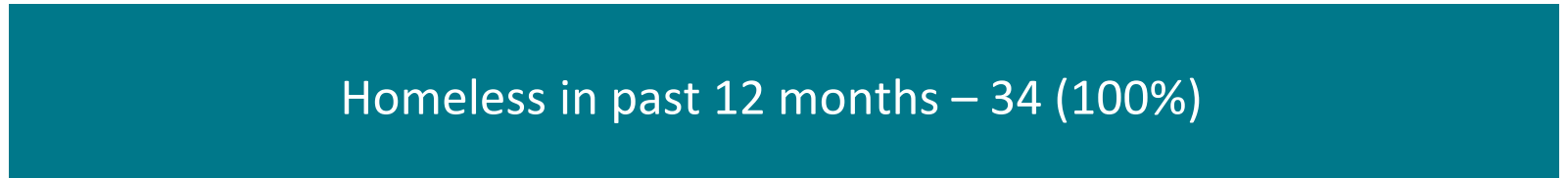
Median Age: 32 (20-54)

Introduced by local
service providers

HIV positive (self-report): 15 (44%)

Hispanic/Latinx: 11
(32%)

Housing



Drug Use

Currently injecting drugs
24 (71%)

In recovery <1yr
10 (29%)

“Heroin” / Fentanyl
16 (47%)

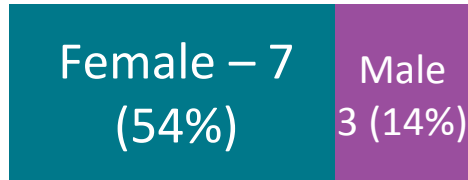
Stimulants
8 (23%)

Stimulants + “Heroin”
/ Fentanyl – 10 (29%)

Gender



Exchange sex



Drug Use

- **Frequency of injection**
 - Some every hour
 - Others only a few times a day
- **Try to not share syringes, but common to share equipment**
 - People trying to use clean syringes
 - Several people said they share with primary partner when in a perceived monogamous relationship
- **Reusing syringes**
- **Accessing syringes of unknown origin in a pinch**

Substance Use Disorder Treatment

■ **Cycling through treatment**

- Perception that people are cycling through inpatient OUD treatment
- Some using treatment as a “break” from the street

■ **Importance of stability for further care**

- Clinicians emphasized housing as a key facilitator of treatment

■ **Barriers to accessing SSP**

- Limited hours/days in Lowell (privately funded) and Lawrence (DPH funded)

Education

■ Services offered

- Education on HIV and hepatitis C

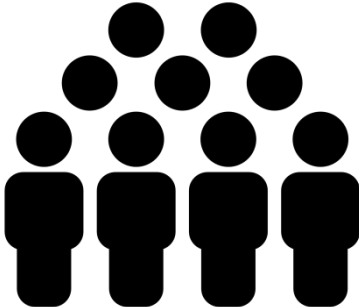
■ Perceptions of HIV and hepatitis C transmission risk

- Hepatitis C seen as the “common cold”
 - Little understanding of impact on body
- HIV transmission
 - HIV awareness common
 - Understanding syringe sharing risk (not as much other equipment)
 - Not as much consideration of sexual risk



Findings: Chart Abstraction

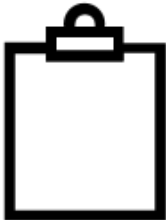
Medical Chart Abstractions for HIV+ patients



64%



36%



N=37
LCHC

N=11 LCHC
and GLFHC

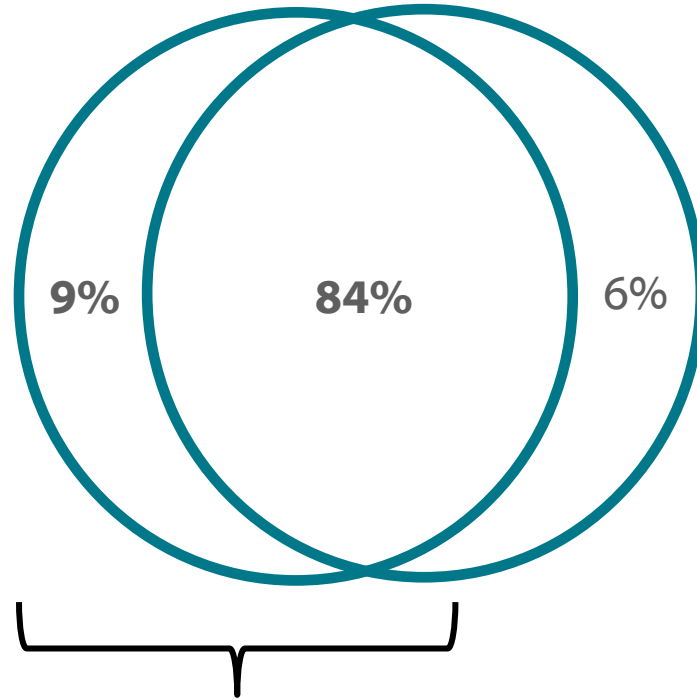
N=41
GLFHC

Could include:

- People not in HIV care
- People in HIV care elsewhere

Care Utilization

Primary care provider Emergency / urgent care



93% of patients went to a PCP

Conclusions

Fentanyl associated with behavior change

- More injecting
- More time intoxicated
- Concomitant sexual risk behavior

Lawrence and Lowell saw early fentanyl introduction

- Overdose rates increased early in this region
- Cost of injectable opioids lower in region

There has been recent transmission

- Low genetic distance threshold has identified many cases that have also been found to have epidemiologic links
- CD4 data suggest some diagnoses are at early stage of disease

There is some spread to non-PWID

- Surveillance data indicate non-PWID cases
- Interviews suggest potential for sexual transmission

Stakeholders report social stability key for ART adherence

- Safe housing
- Reduction in focus on next dose of drugs

Service access limited

- Many fewer syringes are dispensed than injection episodes
 - Expanded SSP locations, hours/days needed
- Law enforcement strives to refer PWID to treatment.
 - Referral pathways to addiction treatment options such as MAT can be further developed

Communication not reaching all stakeholders

- Some local stakeholders were unaware of HIV outbreak or clinical advisory
 - Medical providers
 - Public health
 - Other opioid response stakeholders
 - Users
- Communication and HIV data sharing from state to local health departments limited or delayed

Responses to date

- **Community stakeholder meetings held at start of (May) and following (July) Epi Aid**
- **Have adopted molecular HIV surveillance statewide**
- **Doubling of DPH field epidemiologist capacity in region**
- **New SSP approved in Lowell allowing DPH funding**
- **Examining surveillance data needs of LBOHs and providers**
- **New state/federal resources invested in region**

Responses to date

- **\$1.7M in new state and federal resources allocated by DPH to the region**
 - Expanded testing/linkage programs; examining expanded testing and linking emergency departments
 - Expanded SSP access including mobile drug user health program
 - Expanded overdose education/naloxone distribution
 - New corrections-based testing and post-release linkage programs
 - New user-level educational materials development
 - Proposed first responder training on MAT access

Acknowledgements

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