



CITY OF LOWELL, MASSACHUSETTS
—
BOARD OF HEALTH

AGENDA: Board of Health February 5, 2020 at 6:00 P.M. in the Mayor's Reception Room, 375 Merrimack St., 2nd floor, Lowell, MA 01852.

JANUARY 29, 2020

Michael Geary, City Clerk 375 Merrimack Street Lowell, Massachusetts 01852

Dear Mr. Geary: In accordance with Chapter 303 of the Acts of 1975 you are hereby notified that a meeting of the Lowell Board of Health will be held on Wednesday, FEBRUARY 5, 2020 @ 6:00 P.M. in the Mayor's Reception Room, 375 Merrimack St., 2nd floor, Lowell, MA 01852.

AGENDA:

1. New Business

1.I. For Acceptance: Minutes Of The January 8, 2020 Meeting Of The Board Of Health.

Motion: To accept the minutes of the January 8, 2020 meeting of the Board of Health.

Documents:

[BOH MINUTES - DRAFT JANUARY 8, 2020.PDF](#)

1.II. For Review: Tobacco Control Monthly Report Submitted By Cesar Pungirum, Program Director.

Documents:

[TOBACCO REPORT_JAN2020.PDF](#)

1.III. Monthly Development Services Report Submitted By Senior Sanitary Code Inspector Shawn Machado.

Documents:

[DEVELOPMENT SERVICES - FOOD INSPECTION REPORT 2.5.2020.PDF](#)
[DEVELOPMENT SERVICES - FAILED INSPECTION REPORT 2-5-2020.PDF](#)
[DEVELOPMENT SERVICES - NEW FOOD ESTABLISHMENTS 2.5.2020.PDF](#)
[DEVELOPMENT SERVICES - BODY ART JANUARY 2020 INSPECTIONS.PDF](#)

- 1.IV. For Review: Trinity EMS, Inc. Reports
Review of Monthly and Quarterly Reports submitted by Jon Kelley.

Documents:

[TRINITY EMS INC OVERDOSE REPORT DECEMBER 2019.PDF](#)
[TRINITY Q4 2019 REPORT.PDF](#)

2. Old Business

- 2.I. Update: CDC Investigation Of Increase Of HIV Cases In Massachusetts Drug Users

Documents:

[MMWR NOTES FROM THE FIELD HIV DIAGNOSES AMONG PERSONS WHO INJECT DRUGS - NORTHEASTERN MASSACHUSETTS 3.15.19.PDF](#)
[UPDATE-ON-LOWELL-LAWRENCE-HIV-OUTBREAK.PHC_040319.PDF](#)
[AJPH JANUARY 2020 OPIOID USE FUELING HIV TRANSMISSION IN AN URBAN SETTING - AN OUTBREAK OF HIV INFECTION AMONG PEOPLE WHO INJECT DRUGS.PDF](#)

3. Director's Report

- 3.I. Update: Divisional And Departmental Updates

Documents:

[COMMUNITY HEALTH DIVISION - BOARD OF HEALTH REPORT 02.05.2020.PDF](#)
[PUBLIC HEALTH DIVISION DECEMBER 2019 2.5.19.PDF](#)
[SCHOOL HEALTH DIVISION - DECEMBER REPORT BOH 2.5.20.PDF](#)
[SUBSTANCE ABUSE AND PREVENTION DIVISION - BOH REPORT 2.5.20.PDF](#)

4. 4. Motion: To Adjourn.

Motion: To adjourn.

**THE NEXT MEETING OF THE BOARD OF HEALTH WILL BE HELD ON
MARCH 4, 2020 IN THE MAYOR'S RECEPTION ROOM.**



CITY OF LOWELL, MASSACHUSETTS
BOARD OF HEALTH

January 8, 2020

A meeting of the Lowell Board of Health was held on Wednesday, January 8, 2020 in the Mayor's Reception Room, City Hall, 375 Merrimack St., Lowell, MA 01852. Chairwoman Jo-Ann Keegan called the meeting to order at 6:03 P.M.

Present:

John Donovan, Board Member
William Galvin, Board Member
Lisa Golden, Board Member
Kathleen Cullen-Lutter, Board Member
Jo-Ann Keegan, Interim Director of Health & Human Services
Cesar Pungirum, Tobacco Control Director
Shawn Machado, Sr. Sanitary Code Inspector

1/8/2020 – Minutes

1. NEW BUSINESS

1. I. Election: Election of an Acting Chair of the Lowell Board of Health
Board Member William Galvin made a motion to nominate Board Member John Donovan to act as the Board of Health Chairperson during Jo-Ann Keegan's leave of absence. Seconded by Lisa Golden.

VOTE:

William Galvin - yes
John Donovan - yes
Lisa Golden - yes
Kathleen Cullen-Lutter - yes
Motion passes.

1. II. For Acceptance: Minutes Of The December 11, 2019 Meeting Of The Board Of Health.
Motion to accept the minutes of the December 11, 2019 Board of Health meeting made by Lisa Golden, seconded by William Galvin. All in favor.

1. III. For Review: Tobacco Control Monthly Report Submitted By Cesar Pungirum, Program Director.
Tobacco Control Director Cesar Pungirum reviewed the report with the Board. Mr. Pungirum informed the Board that the City Council passed an ordinance prohibiting smoking in public parks. The fine for violating the ordinance is \$300.

Mr. Pungirum informed the Board that, due to recent changes in the State Law, he would like to withdraw the tabled proposal to change the City's Tobacco Regulations. The Board was in agreement to do so. Mr. Pungirum will submit proposed changes to the regulation in the future if needed.

Mr. Pungirum spoke to the Board about the Two 55 Club on Westford Street regarding smoking and how the owner is attempting to exercise the smoking bar exception to the State Law. It is possible that the Board may want to think about regulations pertaining to smoking clubs. Member Galvin inquired if there are clear guidelines relative to smoking clubs. Mr. Pungirum informed the Board that there are guidelines that are easily adjusted. Possible options were discussed. Senior Sanitary Code Inspector Shawn Machado thought the Fire

Department should be consulted. Mr. Pungirum will contact the Fire Department and look at possible ways to tighten the private club regulations.

1. IV. Monthly Development Services Report Submitted By Senior Sanitary Code Inspector Shawn Machado. Senior Sanitary Code Inspector Shawn Machado reviewed the reports with the Board.

1. V. Discussion: Body Art - Jeff Riel Apprentice License

Motion: To revoke the Body Art Apprentice License issued to Jeffrey Riel as of January 8, 2020 made by William Galvin, seconded by Lisa Golden. All in favor.

1. VI. For Review: Trinity EMS Inc. Reports

The Board reviewed and placed on file.

2. OLD BUSINESS

2. I. Update: Massachusetts DPH BEH Indoor Air Quality Control Report - Lowell High School Interim Health & Human Services Director Jo-Ann Keegan gave the Board a memo from DPW Commissioner Christine Clancy regarding the Status Summary of Lowell High School Indoor Air Quality Reassessment Reports. Commissioner Clancy will provide a more detailed response for the February 5, 2020 Board of Health meeting. Copies of the December 2019 Reassessment reports for the 1920's Building and Freshman Academy were passed out to the Board and will be scheduled for discussion at the February 5th meeting. Interim Director Keegan will participate in a walk-through of the facilities.

Mr. Rick Underwood was present to answer questions from the Board regarding on-going repairs. Mr. Underwood informed the Board that the roof repairs have been great in terms of water mitigation. Mr. Underwood will examine the Indoor Air Quality Reports to determine if the CO2 levels have improved in rooms where the carpets were replaced. Member Galvin noted that some of the reported problems were due to behaviors by the teachers and students - such as the blocking of air vents, etc.

2. II. Update: Service Zone Plan.

Interim Director Keegan informed the Board that she has been in touch with Mr. Brickett regarding the Service Zone Plan. Mr. Brickett has resolved some of the reported issues. Mr. Brickett, George Rose from the City's Emergency Operations Office and others will meet with the State to finish the changes to the Plan.

3. DIRECTOR'S REPORT

3. I. Update: Divisional and Departmental Updates

Interim Director Keegan informed the Board of former HHS Director Kerran Vigroux's resignation effective January 2, 2020. The position has been posted until January 24, 2020. A committee will be established to interview prospective candidates.

Additionally, the Board was informed of Public Health Nurse Coordinator Colleen da Silva's retirement on January 3, 2020.

Member Galvin asked about the grid at the bottom of the Syringe Collection report relative to the Discarded Syringe pick up requests and the calls. Member Galvin felt the grid could be cleaned up a little bit. Board Member Lisa Golden inquired if Trinity EMS was conducting any syringe pickups. Interim Director Keegan will find out the answer.

4. Motion: To Adjourn.

Motion: To adjourn made at 7:00 PM by William Galvin, seconded by Lisa Golden. All in favor.

**THE NEXT MEETING OF THE LOWELL BOARD OF HEALTH WILL BE HELD ON
FEBRUARY 5, 2020 AT 6:00 PM IN THE MAYOR'S RECEPTION ROOM.**

Lowell Tobacco Control Monthly Report

January/2020

Prepared by: Cesar Pungirum, M.M., J.D.
Program Director

Lowell

Inspections

I've conducted 25 inspections so far this month, with greater focus on the implementation of the new state law. While there have been no violations, inspections have been more time-consuming as retailers have been asking a lot of questions about the law.

Pricing Surveys

Fourteen pricing surveys have been conducted this month, so far.

Compliance Checks

No compliance checks conducted this month as recently trained youth is no longer available to work. I'm currently in the process of recruiting more youth.

Permit Renewal Process

All 116 active tobacco retailers have renewed their tobacco permits, most of which before the end of December.

Implementation of the new state law: An Act Modernizing Tobacco Control

The sale of flavored vaping products, including menthol, is now restricted to "smoking bars", a category of establishments "...that primarily is engaged in the retail sale of tobacco products for consumption by customers on the premises..." Currently, there are no smoking bars in Lowell and it is unlikely there will be any soon as smoking in these types of establishments is prohibited in the city. The sale of non-flavored vaping products containing 35 mg or more of nicotine is restricted to adult-only retail tobacco stores. There have been no compliance issues, so far.

We continue to receive updates and implementation guidance from the Massachusetts Tobacco Cessation and Prevention Program (MTCP). On June 1, 2020, the sale of other flavored tobacco products, including menthol cigarettes, will also be restricted to smoking bars.

CDC: Morbidity and Mortality Weekly Report (MMWR) – Early Release

Update on the nationwide e-cigarette or vaping, product use-associated lung injury (EVALI).
Report is attached.

Morbidity and Mortality Weekly Report (*MMWR*)

Weekly / January 24, 2020 / 69(3);90–94

On January 17, 2020, this report was posted online as an *MMWR* Early Release.

Vikram P. Krishnasamy, MD¹; Benjamin D. Hallowell, PhD^{2,3}; Jean Y. Ko, PhD⁴; Amy Board, DrPH^{1,2}; Kathleen P. Hartnett, PhD⁵; Phillip P. Salvatore, PhD^{1,2}; Melissa Danielson, MSPH⁶; Aaron Kite-Powell, MS⁵; Evelyn Twentyman, MD⁴; Lindsay Kim, MD³; Alissa Cyrus, MPH⁷; Megan Wallace, DrPH^{2,3}; Paul Melstrom, PharmD, PhD⁴; Brittani Haag, MS⁵; Brian A. King, PhD⁴; Peter Briss, MD⁴; Christopher M. Jones, PharmD, DrPH¹; Lori A. Pollack, MD⁴; Sascha Ellington, PhD⁴; Lung Injury Response Epidemiology/Surveillance Task Force (View author affiliations)

View suggested citation

Summary

What is currently known about this topic?

Nationwide, 82% of patients hospitalized with e-cigarette or vaping, product use–associated lung injury (EVALI) reported tetrahydrocannabinol (THC)-containing product use. Vitamin E acetate, an additive to THC-containing e-cigarette, or vaping, products, is strongly linked to the EVALI outbreak.

What is added by this report?

The number of EVALI cases reported to CDC peaked during the week of September 15, 2019; the weekly number of hospitalized patients has since steadily declined.

What are the implications for public health practice?

Clinicians and public health practitioners should remain vigilant for EVALI cases. CDC recommends that persons not use THC-containing e-cigarette, or vaping, products, particularly from informal sources. Evidence is not sufficient to rule out the contribution of other chemicals of concern, including chemicals in either THC- or non-THC-containing products, in some reported EVALI cases.

Since August 2019, CDC, the Food and Drug Administration (FDA), state and local health departments, and public health and clinical stakeholders have been investigating a nationwide outbreak of e-cigarette, or vaping, product use–associated lung injury (EVALI) (7). This report updates patient demographic characteristics, self-reported substance use, and hospitalization dates for EVALI patients reported to CDC by states, as well as the distribution of emergency department (ED) visits related to e-cigarette, or vaping, products analyzed through the National Syndromic Surveillance Program (NSSP). As of January 14, 2020, a total of 2,668 hospitalized EVALI cases had been reported to CDC. Median patient age was 24 years, and 66% were male. Overall, 82% of EVALI patients reported using any tetrahydrocannabinol (THC)-containing e-cigarette, or vaping, product (including 33% with exclusive THC-containing product use), and 57% of EVALI patients reported using any nicotine-containing product (including 14% with exclusive nicotine-containing product use). Syndromic surveillance indicates that ED visits related to e-cigarette, or vaping, products continue to decline after sharply increasing in August 2019 and peaking in September 2019. Clinicians and public health practitioners should remain vigilant for new EVALI cases. CDC recommends that persons not use THC-containing e-cigarette, or vaping, products, especially those acquired from informal sources such as friends, family members, or from in-person or online dealers. Vitamin E acetate is strongly linked to the EVALI outbreak and should not be added to any e-cigarette, or

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Related Materials

PDF [144K]

The EVALI and Youth Vaping Epidemics — Implications for Public Health

vaping, products (2). However, evidence is not sufficient to rule out the contribution of other chemicals of concern, including chemicals in either THC- or non-THC-containing products, in some reported EVALI cases.

States and jurisdictions voluntarily report data on confirmed and probable hospitalized or deceased EVALI patients to CDC weekly using established case definitions* and data collection tools[†] (1). Self-reported substances used in e-cigarette, or vaping, products were assessed among EVALI patients, including the percentage reporting any or exclusive THC-containing product use, any or exclusive nicotine-containing product use, and use of both THC- and nicotine-containing products. To assess trends in possible EVALI-related ED visits, CDC and health departments developed a query to assess exposure to e-cigarette, or vaping, products as a reason for an ED visit[§] (3,4).

As of January 14, 2020, all 50 states, the District of Columbia, the U.S. Virgin Islands, and Puerto Rico had reported 2,668 hospitalized EVALI patients (Table). Overall, 66% of patients were male. The median patient age was 24 years (range = 13–85 years), and 76% were aged <35 years. Most EVALI patients were non-Hispanic white (73%), and 15% were Hispanic. Among 2,022 hospitalized patients with information on substances used, 1,650 (82%) reported using any THC-containing product, and 1,162 (57%) reported using any nicotine-containing product; 669 (33%) reported exclusive THC-containing product use, and 274 (14%) reported exclusive nicotine-containing product use.

The weekly number of hospital admissions for EVALI reported to CDC peaked at 215 during the week of September 15, 2019 (Figure 1). Since then, the number of cases reported each week has continued to steadily decline. NSSP data show that the number of possible EVALI-related ED visits sharply increased during August 11–September 8, 2019, by a mean of 26 visits per million each week (95% confidence interval [CI] = 18–33) (Figure 2). The weekly visit rate peaked at 116 per million during the week of September 8, 2019, then decreased by an average of approximately four per million weekly visits (95% CI = 4–5) to 35 per million during the week of January 5, 2020. This remains higher than the rate of 23 per million ED visits during the week of August 18, 2019.

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Discussion

As of January 14, 2020, all 50 states, the District of Columbia, the U.S. Virgin Islands, and Puerto Rico had reported EVALI patients. The majority of EVALI patients were non-Hispanic white, young adults, and male, similar to that reported previously (1,5,6). Most patients reported THC-containing product use. However, 14% reported exclusive use of nicotine-containing products.

Vitamin E acetate is strongly linked to THC-containing products used by EVALI patients (2). However, a minority of EVALI patients consistently report exclusive use of nicotine-containing products, which might be due to several factors. First, some patients might not accurately report, or know the content of, THC or other compounds in the products they have used (2,7). Second, some cases might be misclassified; for example, the high sensitivity of the EVALI case definition likely lowered specificity, leading to inclusion of some patients who do not have EVALI. Third, these patients might be accurately reporting exclusive use of nicotine-containing products (7). A previous report found a relatively low, but longstanding, background rate of ED visits associated with e-cigarette, or vaping, products predating the current outbreak, which could in part reflect one or more chemicals of concern in nicotine-containing products; however, this background rate could also reflect sporadic cases from the same products or substances that later contributed to the wider EVALI outbreak when they became more commonly used (4). The contributing cause or causes of EVALI for persons reporting exclusive use of nicotine-only products warrants further investigation.

Declines in the number of EVALI cases reported each week since mid-September 2019, and ED visits associated with e-cigarette, or vaping, products reported to NSSP, indicate that the outbreak peaked in September. Reasons for the decline might be multifactorial, including rapid public health action to increase public awareness of the risk associated with THC-containing e-cigarette, or vaping, product use, as well as actions by users to reduce this risk. Identification of the strong link between EVALI and vitamin E acetate, a diluent in THC-containing products, might have resulted in removal of vitamin E acetate from these products^{¶,***} (2,8,9). Further, actions by enforcement agencies might have affected the supply of informally sourced THC-containing products (8,10). However, clinicians, public health practitioners, and the public should remain vigilant by taking steps to reduce risk, including efforts by clinicians to identify and treat EVALI patients.

The identification of EVALI as a new clinical syndrome highlights a need for further studies. Understanding the long-term health consequences of EVALI will require long-term patient follow-up. It is not known whether additives other than vitamin E acetate in e-cigarette, or vaping, products might cause similar lung injury. In addition, ongoing surveillance for lung injury associated with e-cigarette, or vaping, product use needs to continue to detect possible increases in lung injury if new

additives (e.g., a harmful diluent other than vitamin E acetate) are added to these products in the future. Syndromic surveillance helped demonstrate that EVALI was a new clinical syndrome, with ED visits sharply increasing in August 2019 and declining after peaking in September 2019 (4).

The findings in this report are subject to at least three limitations in addition to those already discussed related to ascertainment of the product type used. First, data related to product use were missing for 24% of patients, and many EVALI patients were not interviewed because of loss to follow-up, refusal to be interviewed, or lack of resources to conduct interviews. Any of these factors might limit the generalizability of these findings to other EVALI patients. Second, the exposure query in NSSP might have been affected by public and clinical awareness of the outbreak, which increased the likelihood that e-cigarette, or vaping, products would be mentioned in stated reasons for ED visits. Finally, NSSP coverage is not uniform across or within states, and health care facilities contributing data change over time as new facilities are added to the system or removed when they close.

Based on data obtained in the investigation of EVALI since August 2019, CDC recommends that persons not use THC-containing e-cigarette, or vaping, products, particularly those from informal sources such as friends, family members, or from in-person or online dealers.⁵⁴ Vitamin E acetate is strongly linked to the EVALI outbreak; it has been detected in product samples tested by FDA and state laboratories and in lung fluid samples from patients tested by CDC from geographically diverse states (2,8,9). Vitamin E acetate should not be added to any e-cigarette, or vaping, products. In addition, any substances not intended by the manufacturer should not be added to e-cigarette, or vaping, products, including to products purchased through retail establishments. However, evidence is not sufficient to rule out the contribution of other chemicals of concern, including chemicals in either THC- or non-THC-containing products, in some reported EVALI cases. Adults using e-cigarette, or vaping, products as an alternative to cigarettes should not go back to smoking; they should weigh all available information and consider using FDA-approved cessation medications.⁵⁵ They should contact their health care provider if they need help quitting tobacco products, including e-cigarettes, and if they have concerns about EVALI. Adults who do not currently use tobacco products should not start using e-cigarette, or vaping, products. Finally, e-cigarette, or vaping, products should never be used by youths, young adults, or pregnant women.

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Sarah Khalidi, Sondra Reese, Alabama Department of Public Health; Eric Q. Mooring, Joseph B. McLaughlin, Alaska Division of Public Health; Emily M. Carlson, Tiana Galindo, Arizona Department of Health Services; Allison James, Appathurai Balamurugan, Brandy Sutphin, Arkansas Department of Health; California Department of Health EVALI Investigation Team, California Department of Public Health; Elyse Contreras, Richard Holdman, Colorado Department of Public Health and Environment; Sydney Jones, Jaime Krasnitski, Connecticut Department of Public Health; Caroline Judd, Amanda Bundek, Delaware Department of Health and Social Services, Division of Public Health; Adrienne Sherman, Kenan Zamore, District of Columbia Department of Health; Heather Rubino, Thomas Troelstrup, Florida Department of Health; Lung Injury Response Team, Georgia Department of Public Health; Hawaii Department of Health; Kathryn A. Turner, Eileen M. Dunne, Scott C. Hutton, Idaho Division of Public Health; Lori Saathoff-Huber, Dawn Nims, Illinois Department of Public Health; Charles R. Clark, Indiana State Department of Health; Chris Galeazzi, Nicholas Kalas, Tom Salter, Tyra Goss, Iowa Department of Public Health; Arnie Cook, Justin Blanding, Kansas Department of Health and Environment; Kentucky Department for Public Health; Julie Hand, Theresa Sokol, Louisiana Department of Health; Maine Center for Disease Control and Prevention; Clifford S. Mitchell, Kenneth A Feder, Maryland Department of Health; Ryan Burke, Larry Madoff, Massachusetts Department of Public Health; Rita Seith, Eden V. Wells, Michigan Department of Health and Human Services; Stacy Holzbauer, Terra Wiens, Jo Taylor, Cory Cole, Paige D'Heilly, Jamie Margetta, Ruth Lynfield, Minnesota Department of Health; Paul Byers, Kathryn Taylor, Mississippi State Department of Health; Valerie Howard, George Turabelidze, Missouri Department of Health and Senior Services; Greg Holzman, Montana Department of Public Health and Human Services; Matthew Donahue, Tom Safranek, Nebraska Department of Health and Human Services; Melissa Peek-Bullock, Victoria LeGarde, Ashleigh Faulstich, Nevada Department of Health and Human Services; Suzann Beauregard, Darlene Morse, Pascal Kalin, New Hampshire Department of Health and Human Services; Stephen Perez, Lisa McHugh, New Jersey Department of Health; Joseph T. Hicks, Alex Gallegos, New Mexico Department of Health; EVALI Investigation team,, New York State Department of Health; Lauren J. Tanz, Ariel Christensen, Aaron Fleischauer, North Carolina Division of Public Health; Kodi Pinks, Tracy Miller, North Dakota Department of Health; Courtney Dewart, Kirtana Ramadugu, Ohio Department of Health; Tracy Wendling, Claire B. Nguyen, Oklahoma State Department of Health; Tasha Poissant, Amanda Faulkner, Steve Rekant, Laurel Boyd, Oregon Health Authority; Kumar Nalluswami, Brittany N. Spotts, Pennsylvania Department of Health; Ada Lily Ramírez Osorio, Departamento de Salud de Puerto Rico; Ailis Clyne, James Rajotte, Morgan Orr, Rhode Island Department of Health; Virginie Daguisse, Sharon Biggers, Daniel Kilpatrick, South Carolina Department of Health & Environmental Control; Joshua L. Clayton, Jonathan Steinberg, Kipp Stahl, South Dakota Department of Health; Kelly Squires, Julie Shaffner, Tennessee Department of Health; Ketki Patel, Varun Shetty, Haylea Stuteville, DeLayna Goulding, Emily Hall, Texas Department of State Health Services; Esther M. Ellis, US Virgin Islands Department of Health; Keegan McCaffery, Jordan Green, Utah Department of Health; Vermont Department of Health;

Lilian Peake, Jonathan Falk, Virginia Department of Health; Trevor Christensen, Melanie Payne, Washington State Department of Health; Shannon McBee, Christy Reed, West Virginia Department of Health and Human Resources; Jonathan Meiman, Ian Pray, Wisconsin Department of Health Services; Melissa Taylor, Wyoming Department of Health; Lung Injury Response.

Lung Injury Response Epidemiology/Surveillance Task Force

Amena Abbas, National Center for Chronic Disease Prevention and Health Promotion, CDC; Adebola Adebayo, National Center for Immunization and Respiratory Diseases, CDC; Sukhshant Atti, Agency For Toxic Substances and Disease Registry, CDC; Tegan Boehmer, National Center for Environmental Health, CDC; Elizabeth Carter, National Center for Environmental Health, CDC; Gyan Chandra, National Center for Chronic Disease Prevention and Health Promotion, CDC; Lindsay Eckhaus, National Center for Chronic Disease Prevention and Health Promotion, CDC; Janet Hamilton, Council of State and Territorial Epidemiologists; Mia Israel, Council of State and Territorial Epidemiologists; Zheng Li, Agency For Toxic Substances and Disease Registry, CDC; Caitlin Loretan, National Center for Immunization and Respiratory Diseases, CDC; Ruth Lynfield, Minnesota Department of Health; Nisha Nataraj, National Center for Injury Prevention and Control, CDC; Mary Pomeroy, National Center for Emerging and Zoonotic Infectious Diseases, CDC; Caroline Schrodt, National Center for Emerging and Zoonotic Infectious Diseases, CDC; Herschel Smith, National Center for Injury Prevention and Control, CDC; Kimberly Thomas, Center for Surveillance, Epidemiology, and Laboratory Services, CDC; Angela Werner, National Center for Environmental Health, CDC.

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¹National Center for Injury Prevention and Control, CDC; ²Epidemic Intelligence Service, CDC; ³National Center for Immunization and Respiratory Diseases, CDC; ⁴National Center for Chronic Disease Prevention and Health Promotion, CDC; ⁵Center for Surveillance, Epidemiology, and Laboratory Services, CDC; ⁶National Center on Birth Defects and Developmental Disabilities, CDC; ⁷Office of Minority Health and Health Equity, CDC.

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All authors have completed and submitted the International Committee of Medical Journal Editors form for disclosure of potential conflicts of interest. No potential conflicts of interest were disclosed.

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* https://www.cdc.gov/tobacco/basic_information/e-cigarettes/assets/2019-Lung-Injury-Surveillance-Case-Definition-508.pdf .

† https://www.cdc.gov/tobacco/basic_information/e-cigarettes/severe-lung-disease/healthcare-providers/pdfs/National-Case-Report-Form-v01.pdf .

[§] NSSP records free-text comments about the reason for ED visit, discharge diagnosis codes, and patient demographic characteristics from approximately 70% of ED visits nationwide.

[¶] <https://www.detroitnews.com/story/news/local/michigan/2019/12/17/michigan-recalls-marijuana-vaping-products-vitamin-e-acetate/2679157001/> .

** <https://www.cnn.com/2019/12/24/health/black-market-vapes/index.html> .

†† https://www.cdc.gov/tobacco/basic_information/e-cigarettes/severe-lung-disease.html.

^{§§} https://www.cdc.gov/tobacco/campaign/tips/quit-smoking/index.html?s_cid.

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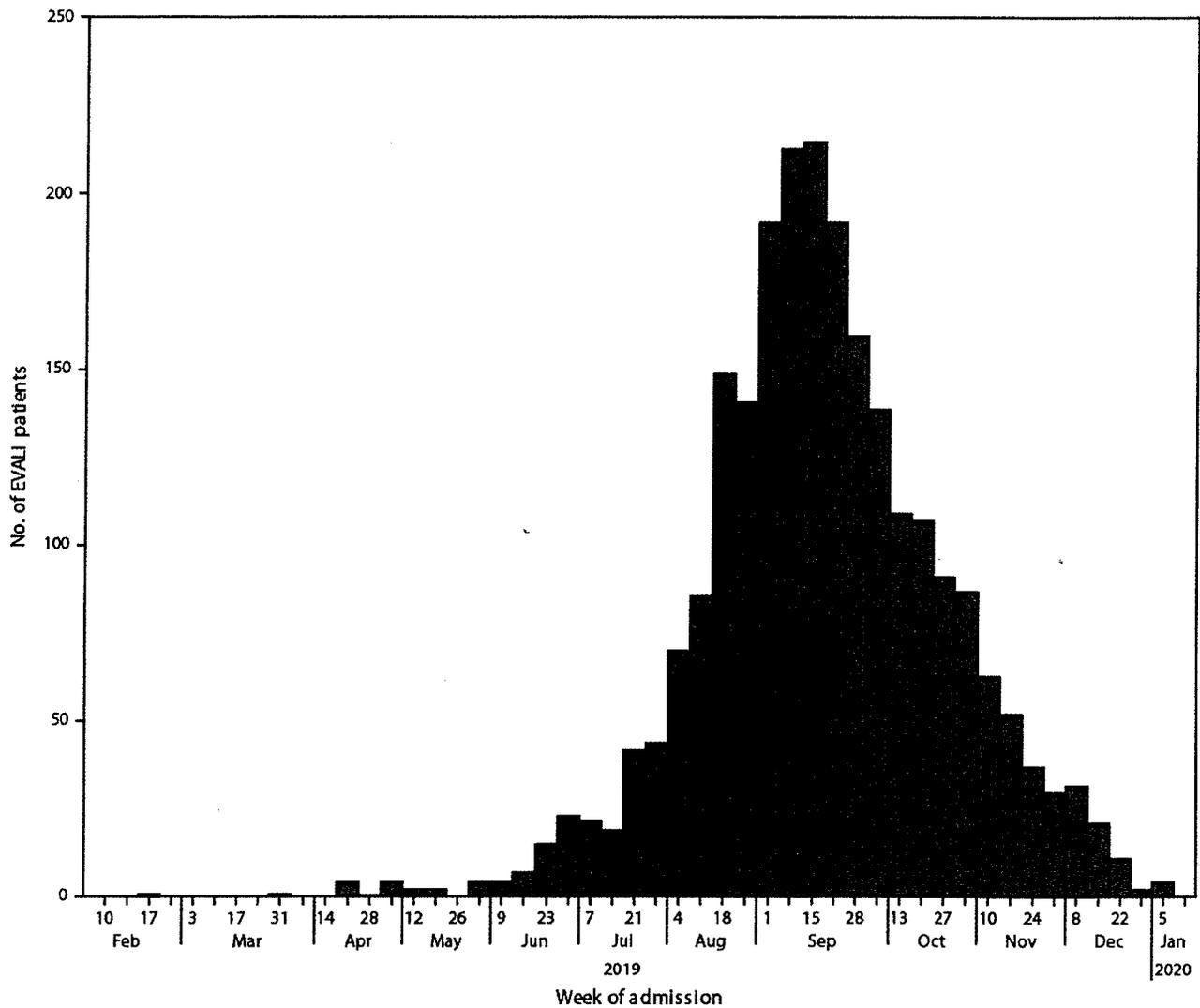
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9. Food and Drug Administration. Lung illnesses associated with use of vaping products. Silver Spring, MD: US Department of Health and Human Services, Food and Drug Administration; 2019. <https://www.fda.gov/news-events/public-health-focus/lung-illnesses-associated-use-vaping-products> 
10. Food and Drug Administration. FDA, DEA seize 44 websites advertising sale of illicit THC vaping cartridges to US consumers as part of Operation Vapor Lock. Silver Spring, MD: US Department of Health and Human services, Food and Drug Administration; 2019. <https://www.fda.gov/news-events/press-announcements/fda-dea-seize-44-websites-advertising-sale-illicit-thc-vaping-cartridges-us-consumers-part-operation> 

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FIGURE 1. Number of patients (N = 2,398) with e-cigarette, or vaping, product use–associated lung injury (EVALI) by week of hospital admission — United States, February 10, 2019–January 14, 2020



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TABLE. Demographic and product use characteristics among hospitalized patients with e-cigarette, or vaping, product use–associated lung injury (EVALI) reported to CDC — United States, August 2019–January 2020* [Return](#)

Characteristic (no. with available information)	No. (%) ^a (N = 2,668)
Sex (2,606)	
Male	1,731 (66)
Female	875 (34)
Median age, yrs (range)	
	24 (13–85)
Age group (yrs) (2,619)	
13–17	404 (15)
18–24	979 (37)
25–34	631 (24)

Characteristic (no. with available information)	No. (%) [†] (N = 2,668)
35–44	335 (13)
45–64	223 (9)
≥65	47 (2)
Race/Ethnicity[‡] (1,856)	
White	1,360 (73)
Black	64 (3)
American Indian/Alaska Native	12 (1)
Asian/Native Hawaiian/Other Pacific Islander	38 (2)
Other	97 (5)
Hispanic	285 (15)
Case status (2,668)	
Confirmed	1,401 (53)
Probable	1,267 (47)
Substances used in e-cigarette, or vaping, products (2,022)^{¶,***}	
Any THC-containing product	1,650 (82)
Any nicotine-containing product	1,162 (57)
Both THC- and nicotine-containing product use	834 (41)
Exclusive THC-containing product use	669 (33)
Exclusive nicotine-containing product use	274 (14)
No THC- or nicotine-containing product use reported	44 (2)

Abbreviation: THC = tetrahydrocannabinol.

* For cases reported to CDC as of January 14, 2020.

[†] Percentages might not sum to 100% because of rounding.

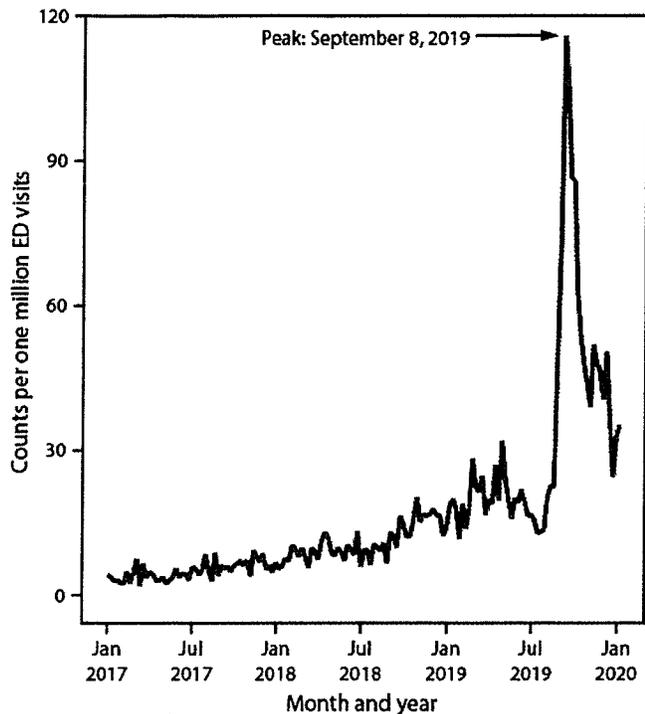
[‡] These were mutually exclusive groups. Whites, blacks, American Indians/Alaska Natives, Asians/Native Hawaiians/Other Pacific Islanders, and Others were non-Hispanic. Hispanic persons could be of any race.

[¶] Limited to persons who reported vaping or dabbing at least one substance in the past 3 months.

^{***} In the 3 months preceding symptom onset.

FIGURE 2. Emergency department (ED) visits with e-cigarette, or vaping, product use in the reason for visit (chief complaint)* — National Syndromic Surveillance Program, United States, January 1, 2017–January 11, 2020

Top
Return



* Excludes injuries unrelated to e-cigarette, or vaping, product use–associated lung injury (e.g., device explosions and accidental ingestion of e-liquid) but does not exclude potentially related syndromes such as acute intoxication from tetrahydrocannabinol or nicotine poisoning.

Top

Suggested citation for this article: Krishnasamy VP, Hallowell BD, Ko JY, et al. Update: Characteristics of a Nationwide Outbreak of E-cigarette, or Vaping, Product Use–Associated Lung Injury — United States, August 2019–January 2020. *MMWR Morb Mortal Wkly Rep* 2020;69:90–94. DOI: <http://dx.doi.org/10.15585/mmwr.mm6903e2> [↗].

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Page last reviewed: January 23, 2020

Establishment	#	Street	Prior Inspection	Inspector 2	Last Inspection	Inspector-1
Powerhouse Juice	120	Merrimack St	26-Jun-19	Adam	20-Dec-20	Adam
Mill City Grows	650	Suffolk St			24-Jan-20	Shawn New
Steve's Catering	36	Chamberlain St.	24-Jul-19	Lisa	23-Jan-20	Lisa
Knickerbocker Athletic Assoc.	36	Chamberlain St.	24-Jul-19	Lisa	23-Jan-20	Lisa
Lowell Memorial Auditorium	50	E. Merrimack St	23-Jul-19	Lisa	23-Jan-20	Lisa
Brewed Awakening Coffee House	61	Market St, Unit #1	23-Jul-19	Lisa	23-Jan-20	Lisa
Market St., Inc.	95	Market St.	23-Jul-19	Lisa	23-Jan-20	Lisa
Chiu Yeung Bakery	165	High St	17-Jul-19		23-Jan-20	Lisa
Asados Dona Flot	197	High St.	17-Jul-19	Lisa	23-Jan-20	Lisa
Los Amigos Market	232	High St.	17-Jul-19	Lisa	23-Jan-20	Lisa
Hannaford's Supermarket	777	Rogers St.	23-Jul-19	Adam	23-Jan-20	Adam
Bento Sushi	777	Rodgers St.	23-Jul-19	Adam	23-Jan-20	Adam
Sts. Memorial Medical Center Kitchen & Café	1	Hospital Drive	17-Jul-19	Lisa	22-Jan-20	Lisa
St. Memorial Gift Shop	1	Hospital Drive	17-Jul-19	Lisa	22-Jan-20	Lisa
McDonald's	1	Varnum Ave.	23-Jul-19	Jimmy	22-Jan-20	Jimmy
Dunkin Donut	1	Hospital Drive	17-Jul-19	Lisa	22-Jan-20	Lisa
Dalphond's/Vic Pastry	1	Lilley Ave.	12-Jul-19	Adam	22-Jan-20	Adam
East End Club	15	W Fourth St.	22-Jul-19	Adam	22-Jan-20	Adam
Honest Lowell	21	Wood St.			22-Jan-20	Shawn New
Pizza Planet	105	Mammoth Rd.	24-Jul-19	Adam New	22-Jan-20	Adam
Father Norton Manor	137	High St.	21-Mar-19	Lisa	22-Jan-20	Lisa
Thirsty First	280	Central St.	31-Jul-19	Lisa	22-Jan-20	Adam
U.S. Bunting Club	449	Bolyston St.	24-Jul-19	Lisa	22-Jan-20	Lisa
Country Farms	56	Aiken Ave.	11-Jul-19	Jimmy	21-Jan-20	Jimmy
Gormley's Lunch	139	E. Merrimack St	30-Jul-19	Adam	21-Jan-20	Adam
Buck's Bar & Grill	165	Chelmsford St.	18-Jul-19	Aurea	21-Jan-20	Aurea
Target Starbucks	181	Plain St.	16-Jul-19	Aurea	21-Jan-20	Adam
Target Pizza Hut	181	Plain St.	16-Jul-19	Aurea	21-Jan-20	Adam
Target	181	Plain St.	16-Jul-19	Adam	21-Jan-20	Adam
Spartan's Pizzeria	863	Varnum Ave.	23-Jul-19	Jimmy	21-Jan-20	Jimmy
CPM Holding	1011	Pawtucket Blvd.	31-Jul-19	Jimmy	21-Jan-20	Jimmy
Moe's Southwest Grill	1235	Bridge St.	12-Jul-19	Adam	17-Jan-20	Adam
George's Restaurant	1224	Gorham St	16-Jul-19	Lisa	16-Jan-20	Lisa
Pizza Hazel	1258	Gorham St.	16-Jul-19	Lisa	16-Jan-20	Lisa
BAPS-NE	50	Stedman St.	18-Jul-19	Aurea	15-Jan-20	Aurea
Boys & Girls Club of Gr. Lowell	657	Middlesex St.	31-Jul-19	Aurea	15-Jan-20	Aurea
Rosenbloom Groceries	1088	Gorham St	22-Jul-19	Lisa	15-Jan-20	Lisa
Ornelas Enterprise	1088	Gorham St.	22-Jul-19	Lisa	15-Jan-20	Lisa
Courtyard by Marriott	30	Industrial Ave, E.	01-Aug-19	Aurea	14-Jan-20	Aurea
Lowell Car Wash	168	Plain St.	11-Jun-19	Aurea	14-Jan-20	Aurea
GNC	199	Plain St.	27-Aug-19	Aurea	14-Jan-20	Aurea
Acre Sport Bar	282	Fletcher St.	22-Jul-19	Aurea	14-Jan-20	Aurea
Alpine Butcher Shop	963	Chelmsford St.	01-Aug-19	Aurea	14-Jan-20	Aurea
Rosso's Italian Style Pizza	1275	Pawtucket Blvd.	23-Jul-19	Jimmy	14-Jan-20	Jimmy
Lucky Market	1300	Gorham St	16-Jul-19	Lisa	14-Jan-20	Lisa
KPT 1300 Liquors	1300	Gorham St.	16-Jul-19	Lisa	14-Jan-20	Lisa

Gulf Quick Mart	1401	Gorham St.	16-Jul-19	Lisa	14-Jan-20	Lisa
Princeton House	100	Princeton Blvd.	30-Jul-19	Aurea	13-Jan-20	Aurea
Infante Grocery	198	Broadway St.	16-Jul-19	Aurea	13-Jan-20	Aurea
Highland Variety	146	Pine St.	30-Oct-19	Aurea	09-Jan-20	Aurea
Bangkok Market, Inc	179	Chelmsford St.	18-Jul-19	Aurea	09-Jan-20	Aurea
Lowell Quick Mart	627	Chelmsford St.	16-Jul-19	Aurea	09-Jan-20	Aurea
L&M Liquors	424	Chelmsford St.	17-Jul-19	Aurea	08-Jan-20	Aurea
Vientaine Grocery & Video	426	Chelmsford St.	17-Jul-19	Aurea	08-Jan-20	Aurea
Family Dollar	1665	Middlesex St.	18-Jul-19	Aurea	08-Jan-20	Aurea
Gary Tipico	26	Andover St.	30-Jul-19	Jimmy	07-Jan-20	Jimmy
Lowell Lodge of Elks	40	Old Ferry Rd	05-Jun-19	Jimmy	07-Jan-20	Jimmy
Food Shines	277	Pawtucket St			06-Jan-20	Shawn New
Pizza Palace	1740	Middlesex St.	17-Jul-19	Aurea	06-Jan-20	Aurea
Honeydew Donut	1740	Middlesex St.	17-Jul-19	Aurea	06-Jan-20	Aurea
Lao' De Café	108	Merrimack St.	28-Jun-19	Adam	02-Jan-20	Adam
Mandrian Asian Bistro	24	Market St.	03-Jun-19	Adam	30-Dec-19	Adam
YMCA	35	YMCA Drive	13-Jun-19	Lisa	30-Dec-19	Lisa
Empire Hunan	87	Church St.	26-Jun-19	Lisa	30-Dec-19	Lisa
Two Chefs Are Better Than One	144	Chelmsford St	06-May-19	Shawn	30-Dec-19	Aurea
Abo Alezz	226	Appleton St.	19-Jun-19	Lisa	30-Dec-19	Lisa
Viet Thai Restaurant**	368	Merrimack St.	23-May-19	Jimmy	30-Dec-19	Jimmy
A&R African International Market	558	Gorham St	25-Jun-19	Lisa	23-Dec-19	Lisa
Powerhouse Foods	122	Merrimack St	16-Dec-19		20-Dec-19	Adam
Friend's Restaurant & Pub	350	Market St.	20-Jun-19	Aurea	20-Dec-19	Aurea

Failed Food Establishments

Meeting 2-5-20

JJ Boomers – 705 Pawtucket Blvd 12/17/19 *Emergency Closure*

Basement flooded – possible sewer leak – dye packs were negative – foul smell from flood / Clean immediately by a professional company.

Hood system not serviced – Hood and vents are extremely dirty / Get hood serviced immediately.

Overall cleanliness of kitchen is filthy / Clean immediately

*Cannot reopen until follow-up inspection shows compliance

Reinspection: Permanently Closed

Last three inspections: All Passed

Sazon Latino – 32 Westford St 12/11/19

Hood and Ansol system out of date and all extinguishers need to be inspected .

Refrigerators are dirty and unorganized.

Product out of date on shelves / remove immediately

Reinspection: 12/18/19 Compliance

Last three inspections:

China Star – 1733 Middlesex St 12/31/19

Ansol System went off - Fire Department called out / Emergency Closure

Service Master cleaned 12/31/19 / Food was removed / Fire system re-serviced.

Reinspection: 1/1/20 Compliance

Last three inspections:

Dunkin Donuts – 1505 Middlesex St – 12/10/19

Entire establishment is unclean / clean immediately

Front small refrigerator is leaking.

Floors dirty throughout establishment / clean immediately

Reinspection: 12/19/19 Compliance

Last three inspections:

Asados Dona Flor – 197 High St - 1/22/20

Fire extinguisher expired – not up to date

Board of Health Meeting 2-5-20

New Food Establishments

**Powerhouse Foods – 122 Merrimack St 978-729-3244 12/16/19 / expanded
Powerhouse Juice**

Food Shines – 277 Pawtucket St (old Jimmy John's) 703-992-3155 1/6/20

Honest Lowell (Indian Vegetarian) – 21 Wood St - (Old Papa Gino's) 1/22/20

**Mill City Grows – (not a restaurant – teaching cooking classes) 650 Suffolk St –
1/24/20**

Overdoses: 95 or 3.1 per day

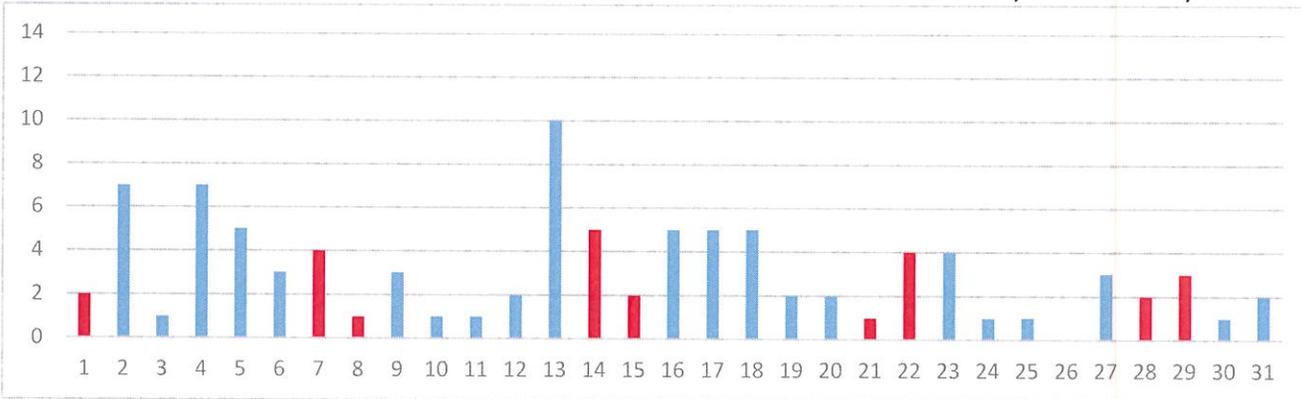
Day of the week:

Day	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Count	20	10	14	9	18	12	12
Average	4.0	2.0	3.5	2.3	4.5	3.0	2.4

95

Day of the month:

Note: Red columns are Saturdays and Sundays



Hour of the day:

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
2	1	4	2	0	4	2	2	2	1	3	6	9	4	4	5	7	2	3	4	12	4	7	5

95

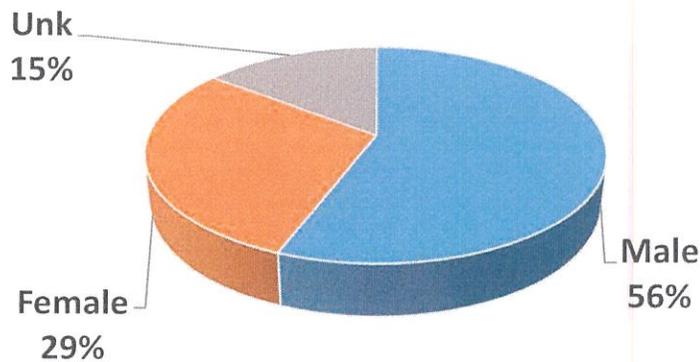
Section of the city:

Profile of patient

Neighborhood	Count
Acre	12
Back Central	6
Belvidere	3
Centralville	15
Downtown	21
Highlands	11
Lower Belvidere	1
Lower Highlands	12
Pawtucketville	5
Sacred Heart	4
South Lowell	5

95

Sex	Count	Avg Age	Range
Female	28	34	11-67
Male	53	35	11-67



18-Dec	19-Jan	19-Feb	19-Mar	19-Apr	19-May	19-Jun	19-Jul	19-Aug	19-Sep	19-Oct	19-Nov	19-Dec
125	86	90	111	96	111	93	97	100	83	107	73	95
4.0	2.8	3.2	3.6	3.2	3.6	3.1	3.1	3.2	2.8	3.5	2.4	3.1

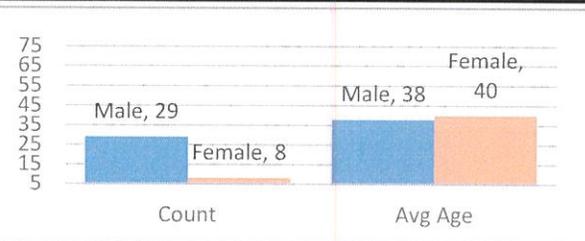
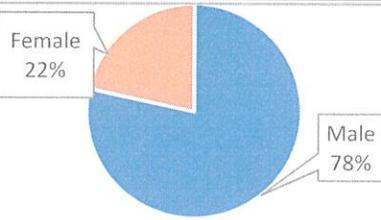
Age	#
12 and U	3
13-15	0
16-17	2
18-21	6
22	1
23	0
24	0
25	4
26	4
27	3
28	3
29	2
30	5
31	2
32	1
33	3
34	4
35	3
36	1
37	3
38	3
39	3
40	3
41	0
42	0
43	1
44	0
45	2
46	2
47	0
48	0
49	1
50	2
51-55	7
56-60	2
61-65	0
66-70	3
71 and up	0
Unk	16



Categorized Opiate Report: Dec-19 Lowell, MA

Priority of patient

Priority 1	27
Priority 2	4
Priority 3	6



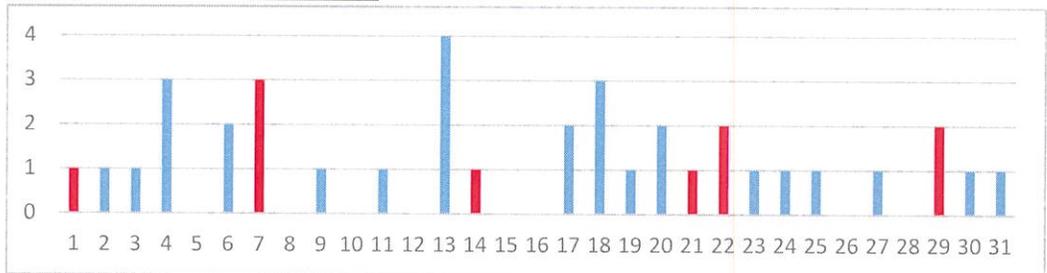
Age

12 and U	0
13-15	0
16-17	1
18-21	0
22	0
23	0
24	0
25	3
26	2
27	1
28	0
29	2
30	1
31	0
32	0
33	0
34	3
35	0
36	1
37	2
38	3
39	2
40	1
41	0
42	0
43	1
44	1
45	2
46	1
47	0
48	0
49	1
50	1
51-55	4
56-60	1
61-65	0
66-70	0
Unk	3

Day of the week:

Day of the week:	#	Avg
Mon	4	0.8
Tue	5	1.0
Wed	8	2.0
Thu	1	0.3
Fri	9	2.3
Sat	5	1.3
Sun	5	1.0

Day of the month: Red are weekends (below)



Hour of the day:

Hour of the day:	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	1	1	2	2	1	0	1	1	1	0	2	3	1	0	0	3	3	0	2	3	5	2	2	1

Location of patient

Location of patient	#
Private Residence	20
Public Location- Inside	7
Public Location- Outside	10
Residential Instituion	0

Narcan used by:

Lowell FD	12	Lowell PD	3
Trinity ALS	1	Trinity BLS	11
LGH ALS	0	Other	6
Park Ranger	0		

Narcan doses

2-3mg	6
4mg	12
6mg	4
8mg	5

Neighborhood

Acre	- 6	Back Central	- 3	Centralville	- 5	Downtown	- 9	Highlands	- 2
Lwr Highlands	- 7	Pawtucketville	- 1	Sacred Heart	- 2	South Lowell	- 2		

Home town of pt

Billerica - 3, Boston - 1, Charlestown - 1, Dorchester - 1, Dracut - 1, Holden - 1, Lawrence - 1, Lowell - 17, Medford - 1, Unknown - 10

Last 12 months All ORI calls

18-Dec	19-Jan	19-Feb	19-Mar	19-Apr	19-May	19-Jun	19-Jul	19-Aug	19-Sep	19-Oct	19-Nov	19-Dec
59	42	49	43	47	46	44	46	35	46	52	36	37
1.9	1.4	1.8	1.4	1.6	1.5	1.5	1.5	1.1	1.5	1.7	1.2	1.2

Last 12 months Priority 1 only

18-Dec	19-Jan	19-Feb	19-Mar	19-Apr	19-May	19-Jun	19-Jul	19-Aug	19-Sep	19-Oct	19-Nov	19-Dec
32	23	21	23	28	25	30	26	26	27	34	23	27
1.0	0.7	0.8	0.7	0.9	0.8	1.0	0.8	0.8	0.9	1.1	0.8	0.9

	ORI - daily average					Priority 1 only- daily average							
	Q1	Q2	Q3	Q4	Yr avg	Q1	Q2	Q3	Q4	Yr avg			
2013	0.7	1.2	1.1	0.6	0.9	2013	0.3	0.4	0.5	0.2	0.3	51-55	4
2014	0.8	1.4	1.6	1.4	1.3	2014	0.3	0.6	0.8	0.9	0.7	56-60	1
2015	1.4	1.7	1.9	1.4	1.6	2015	0.8	0.7	0.9	0.8	0.8	61-65	0
2016	1.7	1.6	2.0	2.3	1.9	2016	1.0	1.0	0.9	1.3	1.0	66-70	0
2017	2.0	2.3	2.8	1.8	2.2	2017	1.2	1.4	1.6	1.0	1.3	Unk	3
2018	2.1	2.0	2.6	2.2	2.2	2018	1.2	1.1	1.3	1.4	1.3		
2019	1.5	1.5	1.4	1.4	1.5	2019	0.7	0.9	0.9	0.9	0.9		



The following data is from Trinity EMS electronic Patient Care Reports. This data is from calls in all 13 communities Trinity provides service for. Only data from December 2019 opioid related calls are included

Trinity EMS Inc provides EMS services for the following communities in MA: Boxford, Chelmsford, Dunstable, Groveland, Haverhill, Lowell, and Dracut. In NH: Atkinson, Danville, Hampstead, Newton, Plaistow, and Sandown.

Only opiate overdoses that Trinity EMS inc responded to are included. If someone from one of the communities listed above overdosed in another community not listed, it will not be represented in this data set.

System wide, Trinity treated 80 patients with an opioid related issue in December 2019.

Row Labels	Count of Date
LOWELL	19
HAVERHILL	17
(blank)	14
LAWRENCE	5
DRACUT	5
BILLERICA	4
AMESBURY	1
BOSTON	1
MEDFORD	1
FRANKLINVILLE	1
DORCHESTER	1
NEWTON	1
LYNN	1
NATICK	1
METHUEN	1
CHARLESTOWN	1
KINGSTON	1
OLD LYME	1
SEABROOK	1
HOLDEN	1
ALTON	1
HUDSON	1
Grand Total	80



2019 4th Quarter Report to the
Lowell, Massachusetts
Board of Health

Reporting Period: Oct 1 – Dec 31 2019

- **INTRODUCTION:**

This is the 4th Qtr. 2019 Report for the Lowell Board of Health.

Any questions or concerns surrounding the contents of this report should be directed to:

Trinity EMS, Inc.

ATTN: Kirk Brigham, Director of Clinical Services

PO Box 187

Lowell, MA 01853

Email: kbrigham@trinityems.com

Thank you,

Management Team

Trinity EMS, Inc

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TIMES:	Trinity BLS Q1 2019	Trinity ALS	LGH ALS	Trinity BLS Q2 2019	Trinity ALS	LGH ALS
Fractile %	92.75%	86.42%	91.79%	94.28%	88.21%	93.32%
Avg out of chute	49 sec	55 sec	59 sec	22 sec	56 sec	48 sec
Avg resp time	5 min 16 sec	6 min 55 sec	6 min 8 sec	4 min 7 sec	5 min 47 sec	5 min 5 sec
Avg on scene time	11 min 01 sec	12 min 29 sec	13 min	10 min 58 sec	10 min 22 sec	11 min 22 sec
Avg transport time	7 min 21 sec	8 min 29 sec	13 min 52 sec	6 min 41 sec	6 min 45 sec	10 min 34 sec
# of events >7:59 response time	385	32	159	315	25	119
# of events using Non Trinity BLS	1	<--This call was the 9th emergency and was an alpha level call. This was given away in error		0		
	Trinity BLS Q3 2019	Trinity ALS	LGH ALS	Trinity BLS Q4 2019		
	93.45%	88.50%	91.57%	91.87%	84.32%	92.12%
Avg out of chute	24 sec	1 min	45 sec	43 sec	1 min 5 sec	50 sec
Avg resp time	4 min 11 sec	5 min 30 sec	5 min 12 sec	4 min 48 sec	4 min 53 sec	5 min 56 sec
Avg on scene time	11 min 42 sec	14 min 47 sec	13 min 10 sec	11 min 41 sec	13 min 52 sec	15 min 16 sec
Avg transport time	6 min 54 sec	7 min 38 sec	10 min 32 sec	6 min 42 sec	7 min 9 sec	10 min 44 sec
# of events >7:59 response time	375	23	156	429	37	145
# of events using Non Trinity BLS	0			1	<-- 8th 911 call in Lowell at that time	

	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q 3 2019	Q4 2019
TEMS BLS	91.53%	94.04%	94.72%	94.03%	92.75%	94.28%	93.45%	91.87%

BLS OUTLIERS:	2017 Total		2018 Total		Last 4 Qs Total		Q1 2019		Q2 2019		Q3 2019		Q4 2019	
1st Emergency	275	25%	340	24%	386	26%	100	26%	80	25%	85	23%	121	28%
2nd Emergency	260	23%	372	26%	400	27%	99	26%	103	33%	102	27%	96	22%
3rd Emergency	195	17%	259	18%	306	20%	71	18%	49	16%	91	24%	95	22%
4th Emergency	154	14%	189	13%	181	12%	50	13%	30	10%	43	11%	58	14%
5th Emergency	108	10%	146	10%	135	9%	41	11%	24	8%	31	8%	39	9%
6th Plus Emergency	124	11%	115	8%	96	6%	24	6%	29	9%	23	6%	20	5%
			1421		1504		385		315		375		429	
BLS REASONS OVER 7:59:	2017 Yearly Total		2018 Total		Last 4 Qs Total		Q1 2019		Q2 2019		Q3 2019		Q4 2019	
Total	1258		1421		1504		385		315		375		429	
Couldn't locate house/lost	22	2%	40	3%	88	6%	14	4%	14	4%	34	9%	26	6%
Crew took long route	60	5%	115	9%	105	7%	34	9%	27	9%	15	4%	29	7%
Distance	485	39%	350	24%	362	24%	77	20%	73	23%	85	23%	127	30%
Dispatch delay	56	4%	40	3%	141	9%	37	10%	26	8%	43	11%	35	8%
Highway	32	3%	9	1%	17	1%	4	1%	1	0%	7	2%	5	1%
Out of chute	188	15%	186	13%	149	10%	46	12%	29	9%	35	9%	39	9%
TEMS Dispatch error	45	4%	127	7%	49	3%	8	2%	12	4%	17	5%	12	3%
Weather	5	0%	47	5%	42	3%	24	6%	0	0%	11	3%	7	2%
EMD			227	16%	257	17%	63	16%	60	19%	64	17%	70	16%
911 Call volume	115	9%	235	17%	215	14%	64	17%	50	16%	45	12%	56	13%
others/blank	250	20%	45	3%	79	5%	14	4%	23	7%	19	5%	23	5%

BLS OUTLIERS:		2017 Total		2018 Total		Last 4 Qs Total		Q1 2019		Q2 2019		Q3 2019		Q4 2019	
Witin the standard (7:59 >)						20243	93.11%	4928	92.77%	5188	94.28%	5289	93.48%	4838	91.85%
0800-0859						734	3.38%	205	3.62%	158	2.79%	174	3.30%	197	3.74%
0900-0959						402	1.85%	104	1.84%	78	1.38%	110	2.09%	110	2.09%
1000-1059						201	0.92%	44	0.78%	42	0.74%	54	1.03%	61	1.16%
1100-1159						77	0.35%	15	0.27%	19	0.34%	14	0.27%	29	0.55%
1200 plus						83	0.38%	16	0.28%	18	0.32%	17	0.32%	32	0.61%
									see below		see below		see below		see below
12 PLUS BREAKOUT		2017 Total		2018 Total		Last 4 Qs Total		Q1 2019		Q2 2019		Q3 2019		Q4 2019	
911 Call volume (5th +)						26	31.33%	5	27.78%	8	47.06%	3	9.38%	10	31.25%
Distance							0.00%		0.00%		0.00%	1	3.13%	1	3.13%
Crew got lost/couldn't find house						11	13.25%	3	16.67%	3	17.65%	1	3.13%	4	12.50%
EMD						13	15.66%	2	11.11%	3	17.65%	3	9.38%	5	15.63%
Highway call						6	7.23%	1	5.56%	1	5.88%	1	3.13%	3	9.38%
TEMS Dispatch error/delay						13	15.66%	4	22.22%	2	11.76%	4	12.50%	3	9.38%
Others						12	14.46%	1	5.56%	1	5.88%	4	12.50%	6	18.75%
33 Q4 2019 over 12 minutes															
1	Lift assist from chair to bed- no transport					16	Psy pt- waiting for PD- canceled by PD					32	ETOH- priority 2		
2	Pt with headache, Visiting nursing with patient					17	EMD- Fall with Visiting nurse. Priority 2 transport						transport		
3	Assault pt with PD- No transport					18	Psy pt- PD was on site- Priority 3 transport								
4	Sec 12, crew arrived and waited for PD					19	Diff breathing- Fire on site in 4, BLS transport								
5	Highway call- canceled by fire no transport					20	uninjured from a Fall. Pt refusal								
6	Nursing home- ALS on site in 6 mintues					21	EMD- Bleeding- priority 3 transport								
7	Psy pt- with PD. Priority 3 transport					22	EMD- nurse with pt. urgent CT scan- no transport								
8	Seizure call- ALS on site in 8- no transport					23	ETOH- Umass EMS with pt- priority 3 transport								
9	EMD- Pt in care of nurse- ALS transport					24	Chest pain- Fire with patient- ALS triage								
10	Pt fell- no transport					25	Hypertention- Fire with pt. Priority 1 transport								
11	Highway call-Other service BLS onsited, ALS on site in 8					26	uninjured from a Fall. Pt refusal								
						27	Diff breathing- ALS on site in 6, ALS transport								
12	Detox request- Pt with PD- priority 3 transport					28	Vomiting- priority 3 transport								
13	Pt vomiting prioirty 3 transport					29	Psy- Visiting nurse with pt- priority 3 transport								
14	Pt vomting priority 2 transports					30	Hip pain- priority 3 transport								
15	ETOH- post detox release- priority 3 transport					31	Psy- waiting for PD Prioirt 2 transport								

VOLUME:	2017		2018		Last 4 Qs		Q1 2019		Q2 2019		Q3 2019		Q4 2019	
Total responses (ALS & BLS)	29696		30318		30019		7462		7497		7710		7350	
Total ALS Responses	8196	28%	8511	28%	8276	28%	2150	29%	1994	27%	2050	27%	2082	28%
TEMS ALS Responses	871	11%	955	11%	871	11%	223	10%	212	11%	200	10%	236	11%
LGH ALS Responses	7325	89%	7556	89%	7405	89%	1927	90%	1782	89%	1850	90%	1846	89%
INCIDENTS:	21500		21807		21743		5312		5503		5660		5268	
BLS Incident	13304		12340		13467		3162		3509		3610		3186	
ALS and BLS Incident	8196		8467		8276		2150		1994		2050		2082	
Needle pick ups			728		280		100		77		62		41	
Non Emergent Lift assists			784		582		327		116		102		37	
TRANSPORTS:	2017		2018		Last 4 Qs		Q1 2019		Q2 2019		Q3 2019		Q4 2019	
Total Transports (ALS & BLS)	14781		16379		16483		4082		4117		4117		4167	
Total BLS Transports	11735	79%	13078	80%	12963	79%	3135	77%	3274	80%	3206	78%	3348	80%
Total ALS Transports	3046	21%	3301	20%	3520	21%	947	23%	843	20%	911	22%	819	20%
TEMS ALS Transports	434	14%	503	15%	462	13%	123	13%	109	13%	112	12%	118	14%
LGH ALS Transports	2612	86%	2798	85%	3058	87%	824	87%	734	87%	799	88%	701	86%
TRIAGE:	2017		2018		Last 4 Qs		Q1 2019		Q2 2019		Q3 2019		Q4 2019	
Total Triage	1102	13%	1178	14%	1072	13%	291	14%	240	12%	247	12%	294	14%
TEMS Triage	60	7%	57	6%	59	7%	13	6%	16	8%	12	6%	18	8%
LGH ALS Triage	1042	14%	1121	15%	1013	14%	278	14%	224	13%	235	13%	276	15%

INTUBATIONS:	2017			2018			Last 4 Qs Total			Q1 2019			Q2 2019			Q3 2019			Q4 2019									
Trinity company total	48	of	98	49%	63	of	69	91%	71	of	76	93%	24	of	25	96%	20	of	24	83%	12	of	12	100%	15	of	15	100%
Trinity Lowell only	2	of	7	29%	10	of	10	100%	6	of	7	86%	3	of	3	100%	1	of	2	50%	2	of	2	100%	0	of	0	###
LGH ALS Lowell only	166	of	174	95%	151	of	155	97%	149	of	150	99%	44	of	44	100%	37	of	37	100%	26	of	27	96%	42	of	42	100%
LGH Greater Lowell region													63	of	63	100%	70	of	71	99%	56	of	57	98%	73	of	73	100%
LGH ALS MAI* in Lowell only	55			62			Last 4 Qs Total			16(24 system wide)			20 (35 system wide)			10 (22 system wide)			17 (30 system wide)									
IO SUCCESS RATE:	2017			2018			Last 4 Qs Total			Q1 2019			Q2 2019			Q3 2019			Q4 2019									
Trinity company total	65	of	69	94%	81	of	81	100%	81	of	81	100%	26	of	26	100%	22	of	22	100%	16	of	16	100%	17	of	17	100%
Trinity Lowell only	6	of	6	100%	12	of	12	100%	8	of	8	100%	3	of	3	100%	2	of	2	100%	2	of	2	100%	1	of	1	100%
LGH ALS Lowell only	72	of	75	96%	83	of	83	100%	89	of	89	100%	28	of	28	100%	20	of	20	100%	18	of	18	100%	23	of	23	100%
Airways:	2017			2018			Last 4 Qs Total			Q1 2019			Q2 2019			Q3 2019			Q4 2019									
Trinity company wide- King tube success rate-post ETT failure			###							###	1	of	1	100%	3	of	3	100%	0	of	0	!	0	of	0	!		
Trinity Lowell- King tube success rate-post ETT failure			###							###	0	of	0	na	0	of	0	na	0	of	0	na	0	of	0	na		
* Intubation total- Total patients intubated/ Total Patients intubated attempted.																												
** Medication Assisted Intubation, in MA, this requires the use of a Paralytic which is controlled & monitored by a special project																												

Last Name	First Name	Title	Hire Date	Position	MA Certification #	National ID
Carrucini	Luis	(FT) EMT-I	2019-12-09	EMT-B	E855239	
Clemetson	Ty	(FT) EMT-I	2019-11-11	EMT-B	E0916562	E3495180
Greene	Jessica	(FT) EMT-I	2019-11-11	EMT-B	E0912177	E3368402
Honeywell	Daniel	(FT) EMT-I	2019-11-11	EMT-B	E0910912	E3346181
Sculley	Brian	(FT) EMT-I	2019-11-11	EMT-B	E0912751	E3380013
Trudel-Good	Andrew	(FT) EMT-I	2019-11-11	EMT-B	E0903359	E3148945
Lesnever	Tristan	(PT) EMT-I	2019-10-18	EMT-B	E0915431	E3461682

EMD- Direct to Trinity

	2017 Total	2018 Total	Last 4 Qs Total	Q1 2019	Q2 2019	Q3 2019	Q4 2019
Alpha (BLS-P3)	1405	1524	1296	303	362	296	335
Bravo (BLS-P2)	410	444	453	109	125	90	129
Charlie (ALS-P1)	679	722	719	185	147	220	167
Delta (ALS-P1)	645	634	716	191	139	223	163
Echo (ALS-P1)	2	3	6	2	1	2	1
Total EMD by Trinity in Lowell	3141	3327	3190	790	774	831	795

The above data are direct calls to Trinity for patients in Lowell.

Alpha- results in BLS going no lights or sirens to the patient

Bravo- results in BLS going lights and sirens to the patient

Charlie, Delta, Echo- results in ALS and BLS going lights and sirens to the patient

As part of Trinity EMS's EMD accreditation a portion of the above calls are randomly selected for quality assurance review. TEMS reviews 25 EMD'ed calls per week. These 25 calls could come from any city or state.

Potentially none or all 25 calls could be for patients in Lowell.

Trinity EMS an Accredited Center of Excellence through the International Academy of Emergency Dispatch. Trinity is 1 of 2 in Massachusetts and 1 of 184 of these centers in the world



	2017 Total	2018	2019	Q1 2019	Q2 2019	Q3 2019	Q4 2019							
Total ORI in Lowell	802	811	523	134	137	127	125							
Priority 1 ORI in Lowell	468	455	313	67	83	79	84							
Trinity wide ORI	1255	1206	855	197	214	235	209							
Trinity wide Priority 1	752	708	545	112	138	151	144							
ORI in Lowell by setting:														
Inside Private home	348	43%	327	40%	206	39%	49	37%	47	34%	42	33%	68	54%
Public location inside	55	7%	82	10%	76	15%	29	22%	18	13%	14	11%	15	12%
Public location outside	370	46%	386	48%	230	44%	50	37%	69	50%	69	54%	42	34%
Other	29	4%	16	2%	11	2%	6	4%	3	2%	2	2%	0	0%
Gender:														
Female	234	30%	224	28%	151	29%	36	27%	48	35%	33	26%	34	27%
Male	558	70%	588	72%	372	71%	98	73%	89	65%	94	74%	91	73%
Females U20	6	3%	2	1%	3	2%	1	3%	2	4%	0	0%	0	0%
Female 20-29	70	30%	78	35%	32	21%	9	25%	12	25%	5	15%	6	18%
Female 30-39	101	43%	79	35%	53	35%	15	42%	19	40%	7	21%	12	35%
Female 40 - 49	37	16%	36	16%	42	28%	8	22%	9	19%	14	42%	11	32%
Female 50- +	20	9%	29	13%	21	14%	3	8%	6	13%	7	21%	5	15%
Male U20	2	0%	2	0%	1	0%	0	0%	0	0%	0	0%	1	0%
Male 20-29	163	29%	178	30%	91	24%	33	24%	18	34%	19	20%	21	20%
Male 30- 39	194	35%	178	30%	129	35%	31	35%	29	32%	35	33%	34	37%
Male 40 - +	115	21%	124	21%	65	17%	13	17%	19	13%	19	21%	14	20%
Male 50 - +	84	15%	106	18%	86	23%	21	23%	23	21%	21	26%	21	22%

	2017 Total		2018 Total		Last 4 Qs Total		Q1 2019		Q2 2019		Q3 2019		Q4 2019		
Acre	106	13%	125	15%	63	12%	18	13%	17	12%	15	12%	13	10%	
Back Central	90	11%	107	13%	82	16%	15	11%	26	19%	21	17%	20	16%	
Belvidere	21	3%	17	2%	17	3%	1	1%	5	4%	5	4%	6	5%	
Centralville	131	16%	109	13%	68	13%	7	5%	20	15%	14	11%	27	22%	
Downtown	182	23%	204	25%	138	26%	48	36%	31	23%	34	27%	25	20%	
Highlands	53	7%	48	6%	36	7%	13	10%	9	7%	8	6%	6	5%	
Lower Belvidere	14	2%	21	3%	11	2%	4	3%	3	2%	2	2%	2	2%	
Lower Highlands	97	12%	81	10%	51	10%	10	7%	15	11%	10	8%	16	13%	
Pawtucketville	40	5%	48	6%	25	5%	6	4%	4	3%	10	8%	5	4%	
Sacred Heart	50	6%	42	5%	21	4%	7	5%	6	4%	5	4%	3	2%	
South Lowell	18	2%	9	1%	11	2%	5	4%	1	1%	3	2%	2	2%	
Home towns of patients:															
Lowell	450	66%	487	60%	314	62%	78	58%	86	63%	74	58%	76	70%	
Dracut	22	3%	39	5%	20	4%	4	3%	6	4%	7	6%	3	3%	
Billerica	16	2%	26	3%	19	4%	7	5%	5	4%	3	2%	4	4%	
Chelmsford	20	3%	18	2%	7	1%	2	1%	4	3%	0	0%	1	1%	
Tewksbury	14	2%	16	2%	11	2%	2	1%	2	1%	3	2%	4	4%	
Other/unknow	165	24%	225	28%	135	27%	41	31%	34	25%	40	31%	20	19%	

ALS: Life Support- may refer to vehicles staffed with a least one paramedic or refer to a paramedic level of patient care. Trinity Emergency ALS vehicles are staffed with two paramedics.

A Response: Is defined as dispatching or sending an ambulance to a request for service. In this report , a response is further sorted to include only emergency responses. These numbers do not include routine transfers such as dialysis patients or radiation treatment patients.

A Transport: Is defined as taking a patient in an ambulance to a destination.

BLS: Basic Life Support- may refer to a vehicle staffed with two emergency medical technicians (EMT) or an EMT level of patient care. Trinity BLS ambulances are staffed with two EMT's

EMD: Emergency Medical Dispatch- a nationally recognized system whereby dispatchers are trained and follow a specific protocol to ascertain the nature of illness/injury and provide patient care instructions to the caller until the First Responders or ambulance arrives.

Intubation Attempt: Is defined as insertion of the laryngoscope blade into the oral cavity for the purpose of inserting an endotracheal tube.

MAI: Medication Assisted Intubation is generally regarded as facilitating an intubation with the use of sedatives. In Massachusetts how ever, this term includes the use of Paralytics. The Massachusetts MAI program is not part of the standard scope of practice for Paramedics. It is controlled through the Department of Public Health's Office of Emergency Medical Services Medical Services Committee.

On scene time: The amount of time that has elapsed from the moment the ambulance is on scene to the moment the ambulance begins transport or is released back into service

Out of chute time: The amount of time that elapses from the moment when the ambulance is dispatched to the moment the ambulance begins moving towards the call.

On time performance score: Is the percentage of calls that meet or exceed the response time criteria.

Request for service: When a dispatcher receives request for an ambulance usually via telephone or radio

Response time: The amount of time that has elapsed from the moment the call is completely entered into the dispatch system to the moment the ambulance arrives on scene.

RSI: Rapid Sequence Intubation is the facilitation of intubation using both sedatives and paralytics

Service Zone Plan: M.G.L. Part 1 Title XVI Chpt. 11C Section 1 defines as "a geographic area defined by and comprised of one or more local jurisdictions, in which a local jurisdiction may select and the department shall designate an EMS first response service and an ambulance service to provide EMD first response and primary ambulance response to the public within the defined area, pursuant to section 10." Massachusetts Regulations 105 CMR 170.249.

Transport time: The amount of time that has elapsed from the moment the ambulances leaves the scene with a patient to the moment the ambulance arrives at the receiving facility

Triage down: When a paramedic units arrives at the patients side and based on the patient condition determines that the patient may be treated and transported at the BS level. Note- There is no protocol for this practice, however, OEMS does address it though an administrative advisory: A/R5=620.

- The following document is a detailed outline of the reporting process used by Trinity EMS.
- **Responding lights and sirens**
 - From Lowell 911
 - All calls require a lights and sirens response regardless of the patients condition except
 - Needle pick ups
 - Pt carry down/up without a medical issue
 - Unless requested to response without lights and sirens by the 911 center.
 - Direct to Trinity calls that Trinity EMD's
 - Bravo, Charlie, Delta, and Echo go with lights and sirens
 - Alpha or Omega level calls go without lights and sirens
 - Direct to Trinity that Trinity doesn't EMD
 - Response lights and sirens for any patients. Unless the calling agency EMD'ed the call to a non-urgent level.
 - This set of calls would include call from UMASS PD, or other ambulance services.
- Incident
 - A request for or by someone within the city limits of Lowell that requires an EMS response.
 - Each request is counted as 1 incident
 - A patient that gets a BLS unit for back pain is counted as 1 incident
 - A 10 car MVC with 20 patients requiring 6 BLS, 2 ALS, and 2 helicopters is counted as 1 incident
- Responses
 - Counts the number of occurrences when EMS vehicles response lights and sirens to a call.
 - An ALS and BLS unit response to a patient with chest pain, that counts as 2 responses. (2 vehicles put their lights on)
- Times:
 - All below are from incidents
 - BLS
 - Priority 1, and 2 incident responses
 - Includes 911 and calls direct to Trinity
 - Any call directly to Trinity from another call center that would require an emergent response
 - (IE- Umass Lowell calls Trinity for a chest pain)
 - Any Charlie, Delta, Echo response called and EMD'ed by Trinity
 - Includes call when ALS and BLS responded as well as call when just BLS responded.
 - **Q# year# Performance score**
 - Is the created by
- Dividing the number of incidents BLS units responded to.

- Into the number of those calls that shows a response time over 08:00 or greater
 - Calls excluded
 - Delta level calls EMD'ed by Trinity that had a total response time of greater than 07:59
- **Avg out of chute**
 - Time from Trinity designated and selected ambulance was assigned call to selected crew to the time selected vehicles starts movement towards this call
 - Excluded-
 - Any time showing more than 10 minutes is excluded as likely time stamp missing
- **Avg response time**
 - From Call saved by Trinity dispatch to time ambulance arrived at geocoded location of the call.
 - Within Trinity CAD- The call saved time is called "call taken". This time is created after Trinity dispatch get an address, apartment, complaint, and any other info 911 passed along.
 - Excluded-
 - Charlie, delta, Echo, and Omega calls direct and EMD'ed by Trinity that result in a response time over 07:59
 - Any time showing more than 20 minutes is excluded as likely time stamp missing
- **Avg on scene time**
 - Includes only calls included above
 - Time from crew arrival on site to time vehicle:
 - Clears
 - Occupies to the hospital
 - Excluded
 - Any time showing more than 30 minutes is excluded as likely time stamp missing
- **Avg transport time**
 - Includes only calls included above
 - Time from crew: Clears or arrives to the hospital
 - Excluded
 - Any time showing more than 20 minutes is excluded as likely time stamp missing
- **# of events >7:59 or greater**
 - Includes any call that includes calls included from reasons earlier in the section
 - That's response time is greater than 07:59
 - Excluded
 - Any call where the unit is canceled prior to arrival
- Called that were EMD'ed by Trinity

- No other calls are excluded- weather, 911 call volume as examples are outliers counted and categories in the “BLS reasons over 07:59”
- **# of events using Non Trinity BLS units**
 - Requests for ambulances to Trinity that Trinity was not able to send a BLS unit on within the State mandated 5 minute dispatch time for
 - Any 911 priority 1 or 2 call
 - Any call directly to Trinity from another call center that would require an emergent response
 - (IE- UMass Lowell calls Trinity for a chest pain)
 - Any Charlie, Delta, Echo response called and EMD’ed by Trinity
- ALS
 - The only difference from the BLS is the ALS times start at dispatch, and not call created
- **BLS Outliers:**
 - For any BLS response over 07:59
 - Trinity will make note and report in this section the number of concurrent emergencies in Lowell at the time this call is created.
 - Includes 911 calls and calls direct to Trinity
 - Non-emergency and call in other cities will not be counted
- **BLS Reasons over 07:59**
 - For any BLS response over 07:59
 - Trinity will conduct a route cause analyses as to the reason for the response time
 - Trinity will take note and report in this section. These reasons will be grouping into 1 of the following
 - Couldn’t location house/lost
 - Crew passes the geo-coded location for the address more than once without getting on arrival
 - Crew took long route
 - Crew did not take the fastest route from their dispatch location to the pickup location
 - Distance
 - Usually this is used when a
 - Dispatcher gives the call out within 60 seconds
 - The crew is enroute within 120 seconds
 - Posting is happening
 - The ambulance crew went the most direct route
 - Circumstances include
 - If there is a second call in a sector of the city before reposting. 2nd call in downtown, this ambulance to the second call has two reports a much greater distance to the patient.

*Both
2-5-20*

Morbidity and Mortality Weekly Report (*MMWR*)

Notes from the Field: HIV Diagnoses Among Persons Who Inject Drugs — Northeastern Massachusetts, 2015–2018

Weekly / March 15, 2019 / 68(10);253–254

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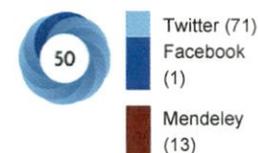
[View suggested citation](#)

From 2000 to 2014, the number of annual diagnoses of human immunodeficiency virus (HIV) infection in Massachusetts declined 47% (7). In August 2016, however, the Massachusetts Department of Public Health (MDPH) received reports of five new HIV cases among persons who inject drugs from a single community health center in the City of Lawrence (2). On average, less than one case per month among persons who inject drugs had been reported in Lawrence during 2014–2015 from all providers. Surveillance identified additional cases of HIV infection among such persons linked to Lawrence and Lowell, in northeastern Massachusetts, during 2016–2017. In 2018, MDPH and CDC conducted an investigation to characterize the outbreak and recommend control measures.

Investigators reviewed surveillance data and HIV-1 polymerase (*pol*) gene nucleotide sequences derived from drug resistance testing and interviewed persons with HIV infection in northeastern Massachusetts. Cases were defined as diagnoses of HIV infection in northeastern Massachusetts during January 2015–May 2018 in 1) a person who injects drugs who received medical care, experienced homelessness, resided, or injected drugs in Lawrence or Lowell; 2) a person who was epidemiologically linked as an injecting or sex partner of a person with HIV infection connected to Lawrence or Lowell; or 3) a person with an HIV-1 *pol*/nucleotide sequence molecularly linked at a genetic distance of $\leq 1.5\%$ (as determined by pairwise sequence analysis) to that of another person in the investigation who was connected to Lawrence or Lowell. Qualitative interviews were conducted with a purposeful sample of 34 persons who inject drugs to assess risk factors for HIV infection and with 19 clinicians and other stakeholders in Lawrence and Lowell to identify available medical and social services.

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As of June 30, 2018, a total of 129 persons meeting the case definition were identified; 74 (57%) were male, 94 (73%) were aged 20–39 years at diagnosis, 87 (67%) were non-Hispanic white, and 38 (29%) were Hispanic. Most (114; 88%) reported a history of injection drug use (Figure), including four (3%) who also reported male-to-male sexual contact; 116 (90%) had laboratory evidence of past or current hepatitis C virus infection. Median CD4+ cell count at diagnosis was 550 cells/ μ L (range = 1–1,470), suggestive of a number of recent infections (3). Molecular analysis aided case identification: 28 (22%) cases had epidemiologic links only; 69 (53%) had both epidemiologic and molecular links; and 32 (25%) had molecular links only. Four clusters of ≥ 5 cases were identified using molecular links; two of these clusters accounted for 78 (60%) cases.

In qualitative interviews, the 34 persons who inject drugs variously identified opioids alone, stimulants (i.e., cocaine and methamphetamine) alone, or both opioids and stimulants as their drugs of choice. Sharing syringes and other equipment, experiencing homelessness, being incarcerated, or exchanging sex for drugs during the previous year also were reported. Stakeholders reported that fentanyl had replaced heroin in local communities, was cheaper in Lawrence than in other cities in the region, and had increased injection frequency. The reported increased frequency of fentanyl injection might have increased transmission in Lawrence and Lowell. Stakeholders also reported that frequent homelessness and incarceration among injection drug users undermined HIV treatment success because of interrupted treatment, missed appointments, and having multiple care providers. An additional challenge noted was syringe services program (SSP) accessibility. Lowell had a privately funded SSP with limited days and hours of operation; since 2017, Lawrence had a state-funded SSP with daily availability, but no weekend or evening hours.

Opioid overdose deaths have increased rapidly in Lawrence and Lowell since 2013 (4), with postmortem fentanyl detection increasing statewide (5). The presence of multiple molecular clusters and unlinked infections suggests multiple introductions of HIV among persons who inject drugs as well as recent and rapid transmission in the context of some longstanding HIV infections.

Lawrence and Lowell approved state-funded SSPs in 2016 and 2018, respectively. MDPH has since deployed additional field staff members to link persons with HIV infection to care and to provide partner services. MDPH and local partners are expanding services that address social instability attributable to homelessness and incarceration and increase knowledge about safer injection practices among persons who inject drugs. MDPH will continue HIV testing, field investigation, and molecular cluster detection and response statewide.

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All authors have completed and submitted the ICMJE form for disclosure of potential conflicts of interest. Nivedha Panneer reports stock ownership in Gilead. Shauna Onofrey reports that a family member works for and owns stock in Emergent Biosolutions. No other potential conflicts of interest were disclosed.

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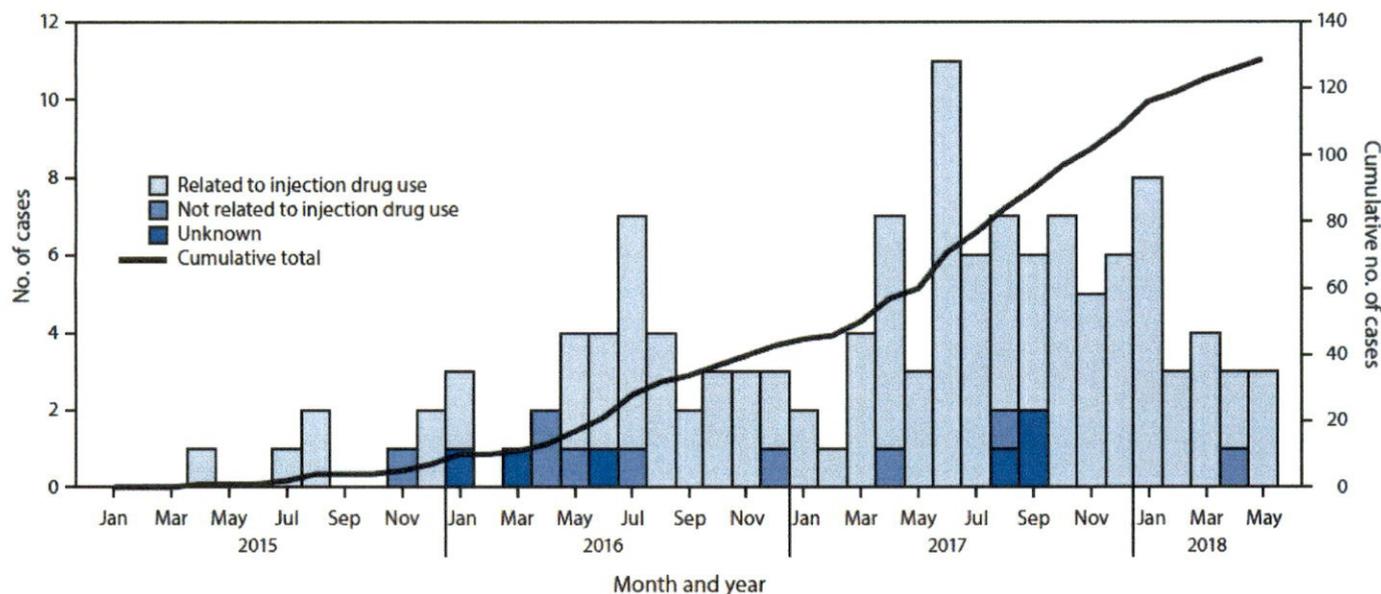
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1. Cranston K, John B, Fukuda HD, et al. Sustained reduction in HIV diagnoses in Massachusetts, 2000–2014. *Am J Public Health* 2017;107:794–9. [CrossRef](#) [PubMed](#)
2. Massachusetts Department of Public Health. 2017 Massachusetts HIV/AIDS epidemiologic profile: people who inject drugs (PWID). Jamaica Plain, MA: Massachusetts Department of Public Health; 2018. <https://www.mass.gov/doc/people-who-inject-drugs-pwid-data-as-of-1117/download>

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- Massachusetts Department of Public Health. Data brief: opioid-related overdose deaths among Massachusetts residents. Boston, MA: Massachusetts Department of Public Health; 2018. <https://www.mass.gov/files/documents/2018/05/22/Opioid-related%20Overdose%20Deaths%20among%20MA%20Residents%20-%20May%202018.pdf>

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FIGURE. Human immunodeficiency virus diagnoses linked to Lawrence and Lowell, Massachusetts, January 2015–May 2018



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Massachusetts Department of Public Health
Bureau of Infectious Disease and Laboratory Sciences

Update on the Lowell/Lawrence HIV Outbreak Among People who Inject Drugs

Massachusetts Public Health Council
April 3, 2019

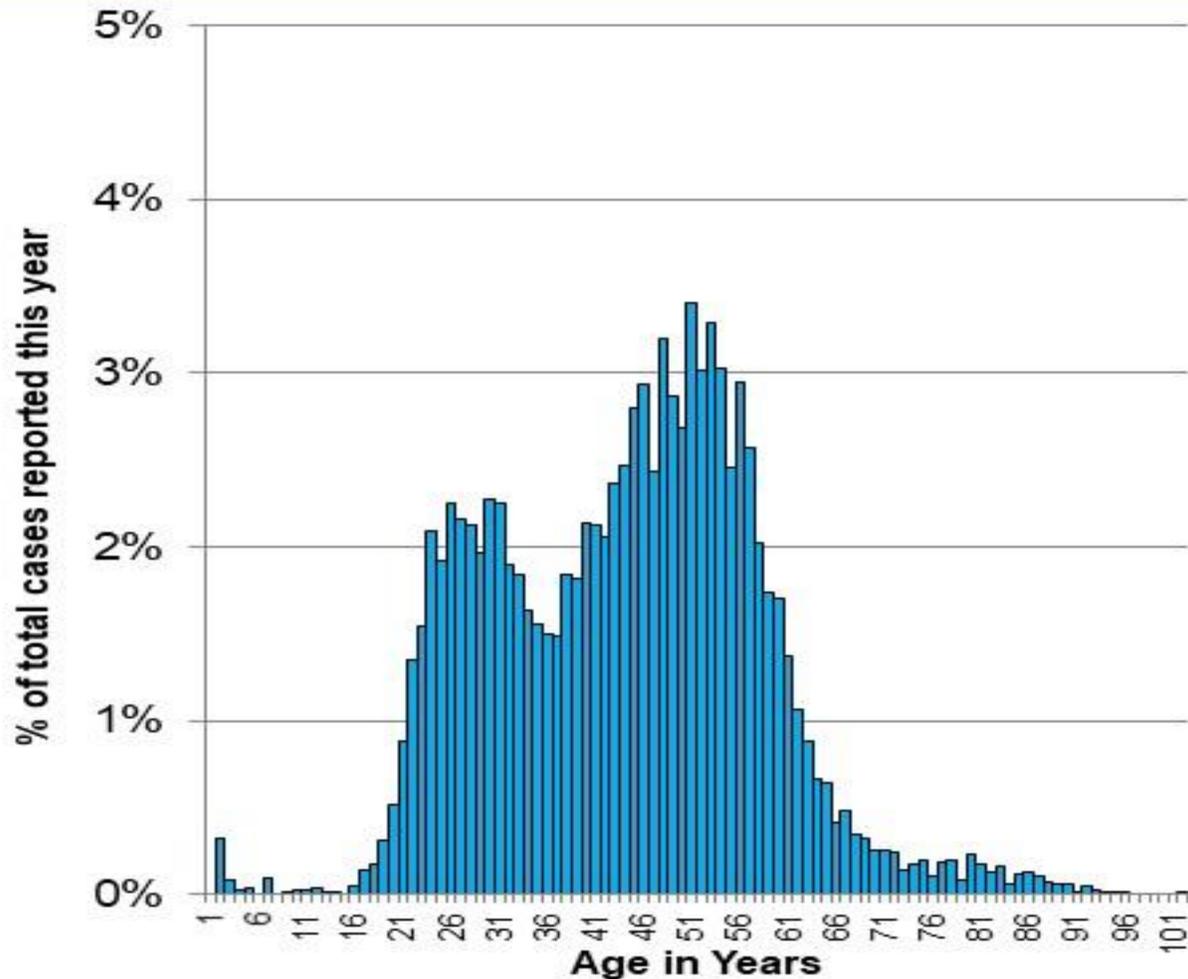
Kevin Cranston, MDiv
Assistant Commissioner
Director, Bureau of Infectious Disease and Laboratory Sciences
Massachusetts Department of Public Health

Where it all started: under the Casey Bridge in Lawrence

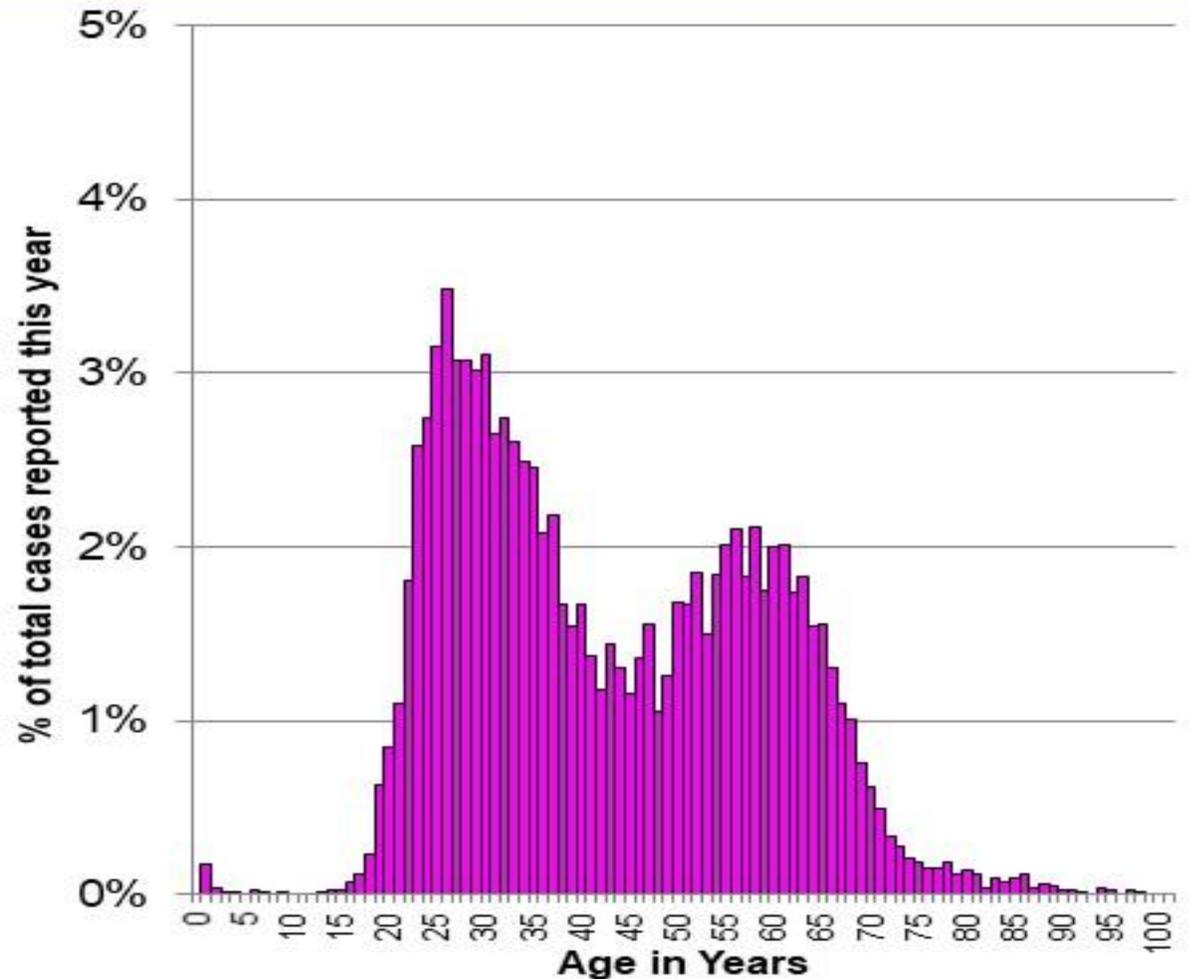




Distribution of Confirmed and Probable Hepatitis C Cases by Age: 2007 Versus 2015

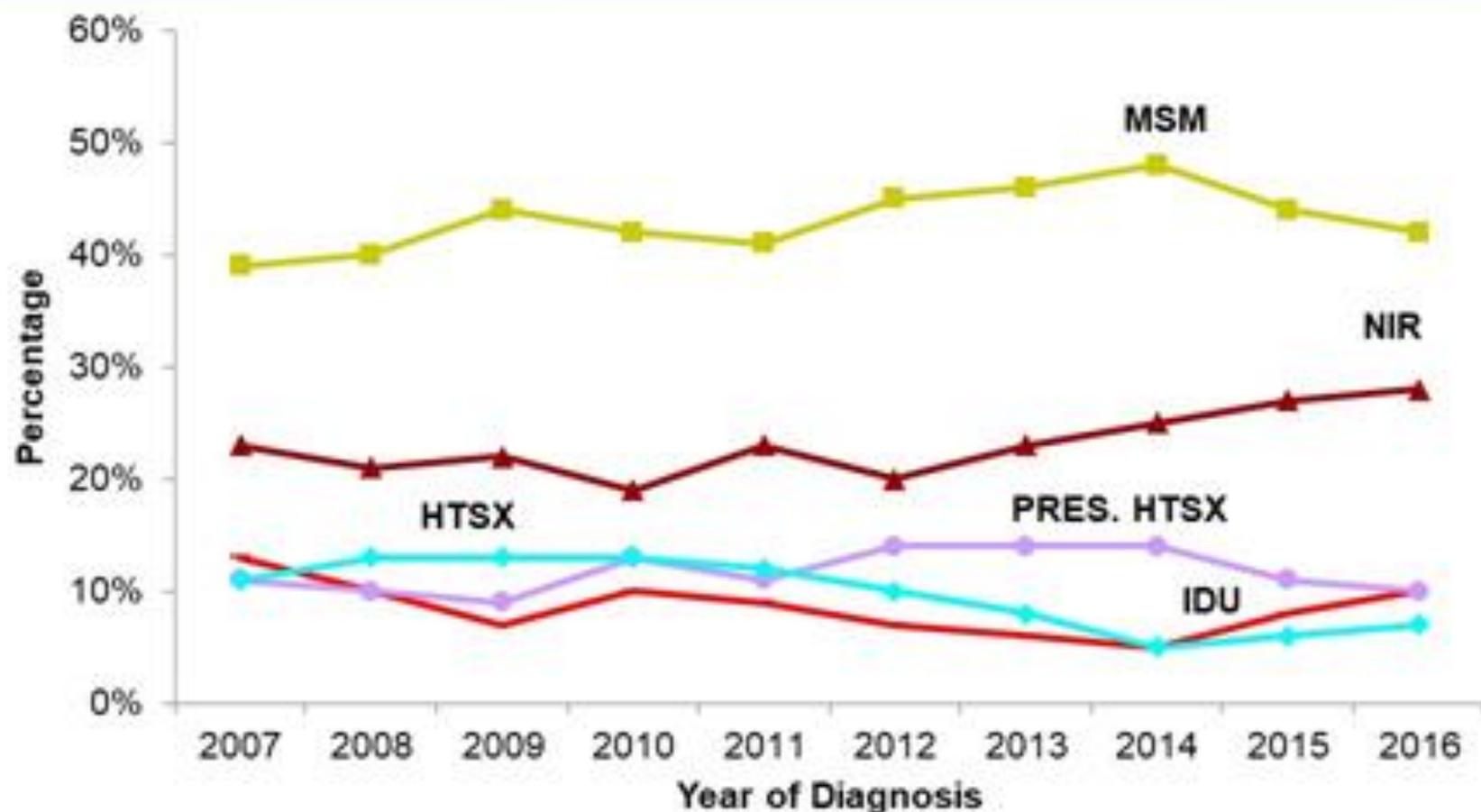


2007: N=8,649, excludes 476 missing



2015: N=9,026, excludes 16 missing

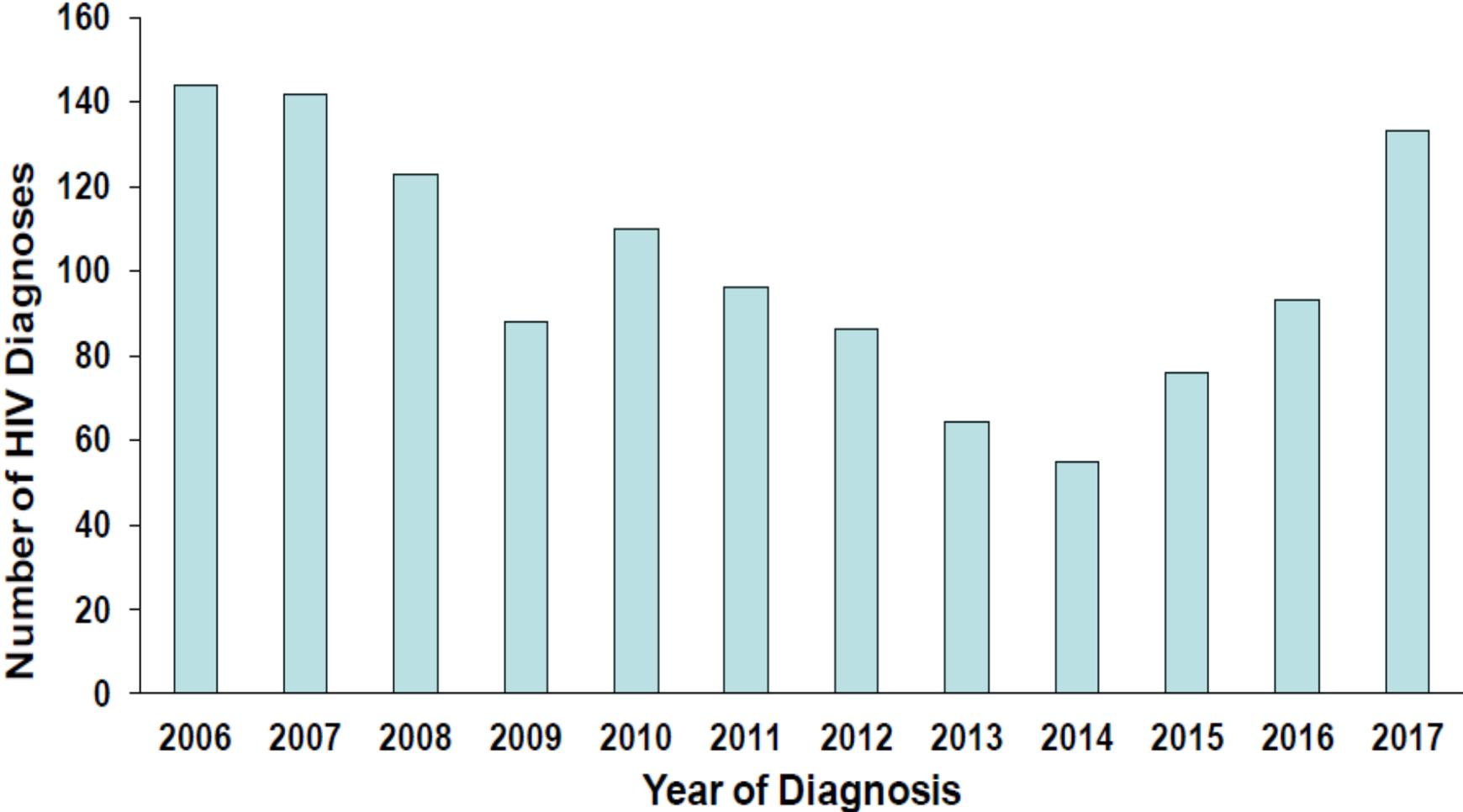
Trends in the Percentage Distribution of Individuals Diagnosed with HIV Infection by Selected Exposure Mode¹ and Year of Diagnosis: Massachusetts, 2007–2016



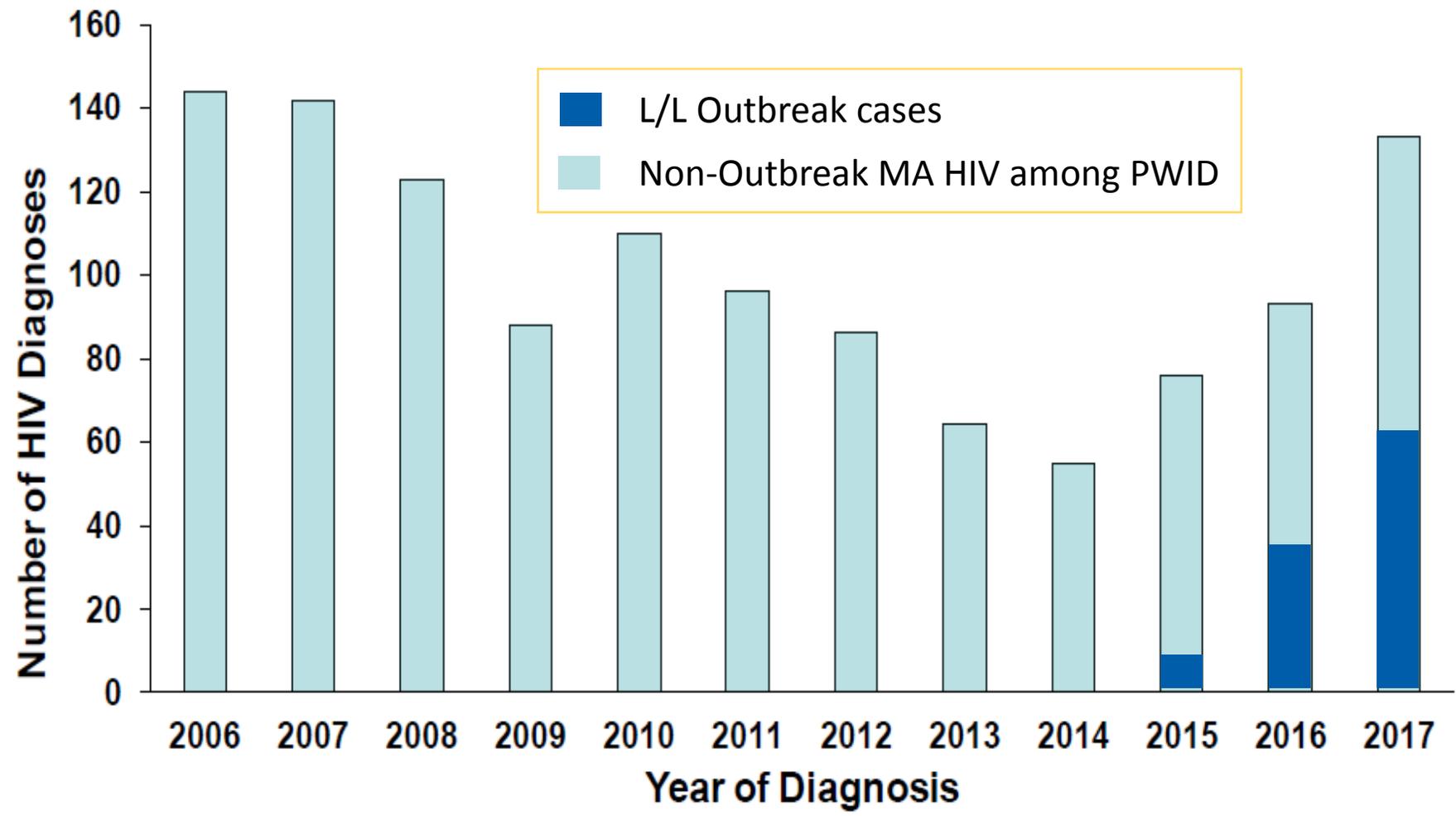
¹ Values less than five are suppressed to protect privacy

N=6,972, 2007–2016; HTSX=heterosexual sex, IDU=injection drug use, MSM=Male-to-male sex, NIR=no identified risk, Pres. HTSX=Presumed Heterosexual Sex, Data Source: MDPH Bureau of Infectious Disease and Laboratory Sciences; Data as of 1/1/18

**Diagnoses of HIV among PWID had been decreasing in MA through 2014
These diagnoses have been increasing since 2015**

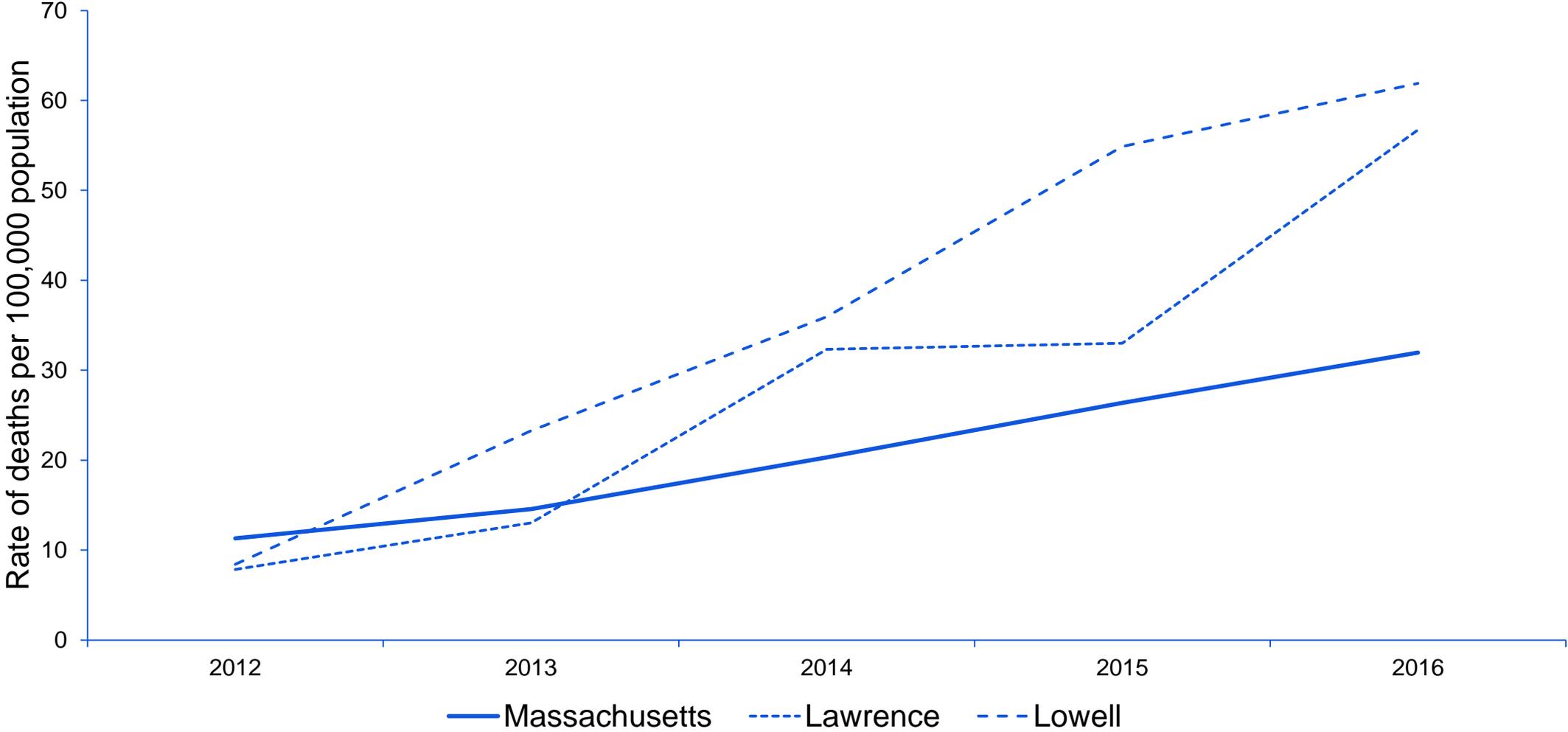


Outbreak in Lawrence and Lowell accounted for an increasing proportion of HIV infections among PWID in Massachusetts 2015-2017



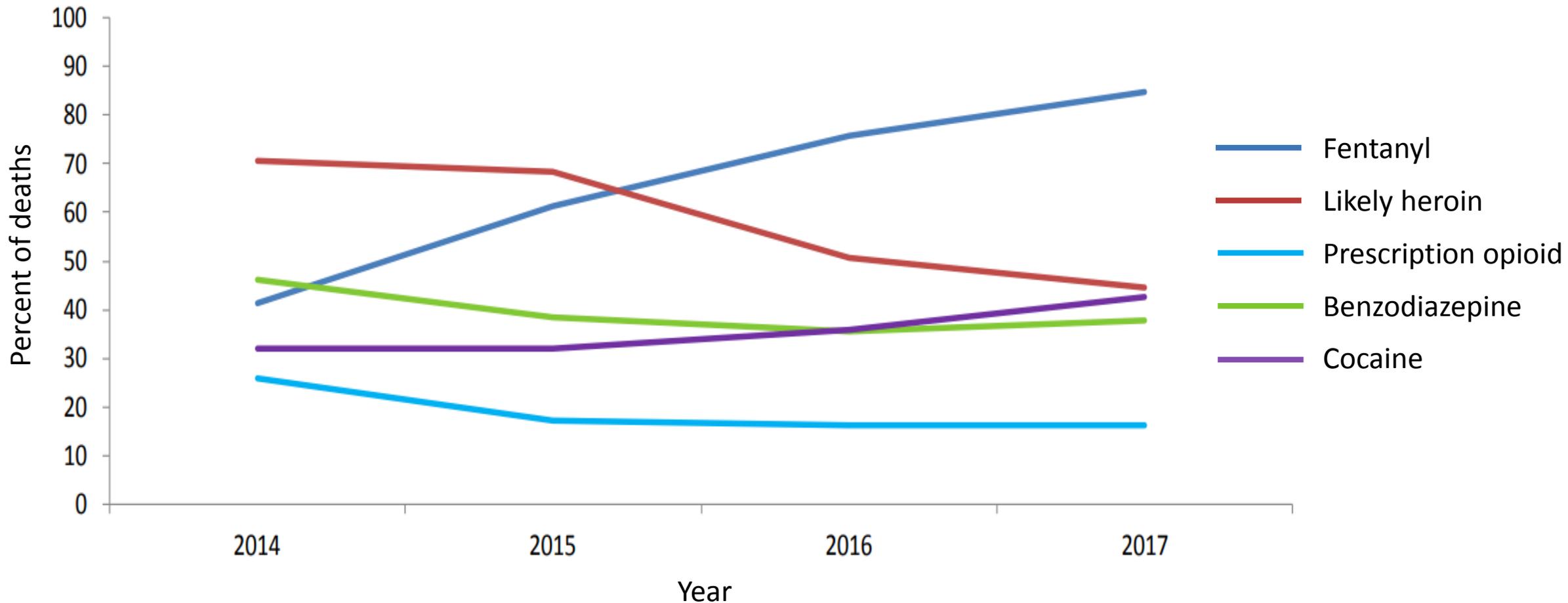
Fatal opioid overdoses increased over time in Massachusetts through 2016

Higher rates of increase seen in Lowell/Lawrence



Fentanyl detection increased among fatal opioid overdoses Massachusetts 2014-2017

Percent of opioid-related deaths with specific drugs detected on post-mortem toxicology testing – MA, 2014-2017



“If I don’t have a needle, they did but it was already used and they’d be like “do you care?” and I was like no. And I only said no only being like dope sick or just wanting the next fix.”

“I shoot up and then next thing I know I’m feeling really sick, and I start talking... to my girlfriend, like “was there like coke in this dope? stay away from me, I’m mad at you.” I was pissed at her... And then she’s like “I just narcan’ed you twice.””

Principle risk: OVERDOSE

“We were all taught it’s gonna die after, like, 3 or 5 seconds after hitting the air. So we would pull out the plunger and just like wait and then put it back in and use it.”

“If I don’t have a needle, they did but it was already used and they’d be like “do you care?” and I was like no. And I only said no only being like dope sick or just wanting the next fix.”

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Misconceptions of risk

“We were all taught it’s gonna die after, like, 3 or 5 seconds after hitting the air. So we would pull out the plunger and just like wait and then put it back in and use it.”

“If I don’t have a needle, they did but it was already used and they’d be like “do you care?” and I was like no. And I only said no only being like dope sick or just wanting the next fix.”

“I shoot up and then next thing I know I’m feeling really sick, and I start talking... to my girlfriend, like “was there like coke in this dope? stay away from me, I’m mad at you.” I was pissed at her... And then she’s like “I just narcan’ed you twice.””

Low threshold for risk taking

“We were all taught it’s gonna die after, like, 3 or 5 seconds after hitting the air. So we would pull out the plunger and just like wait and then put it back in and use it.”

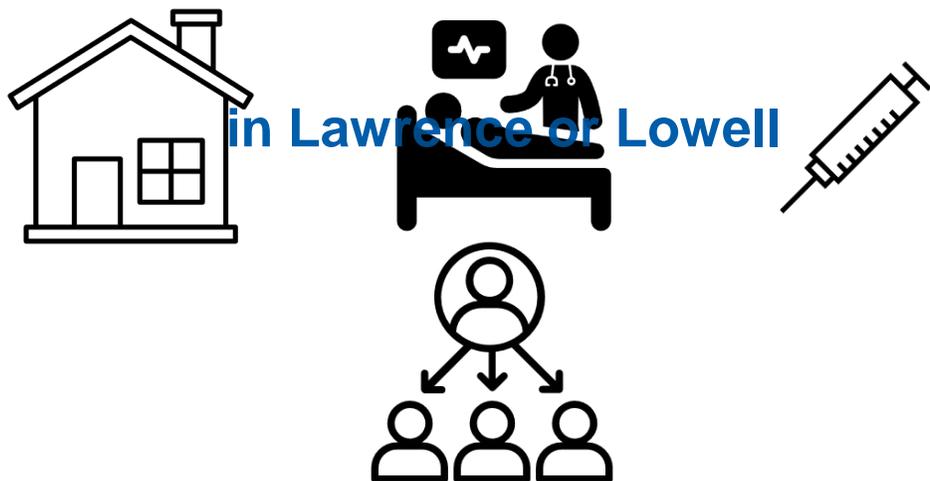
The Case Definition

HIV infection diagnosed January 2015 to June 2018

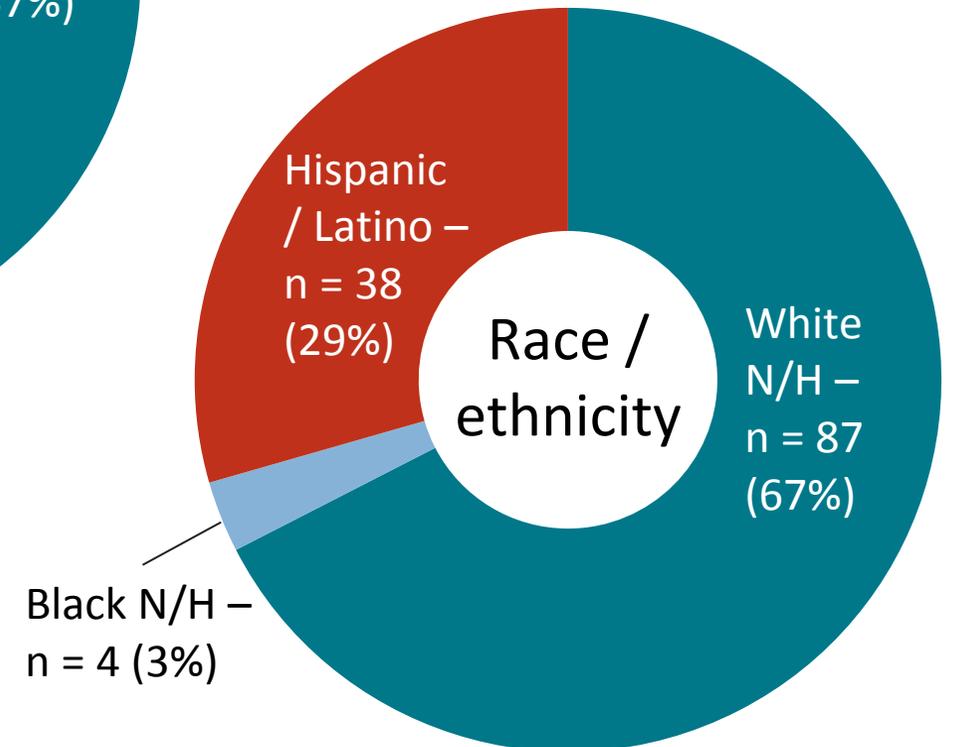
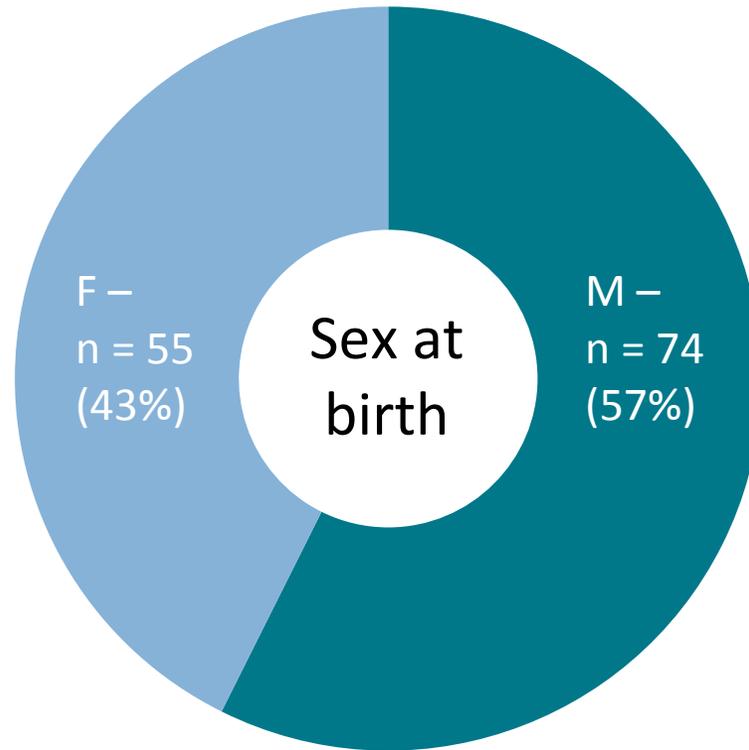
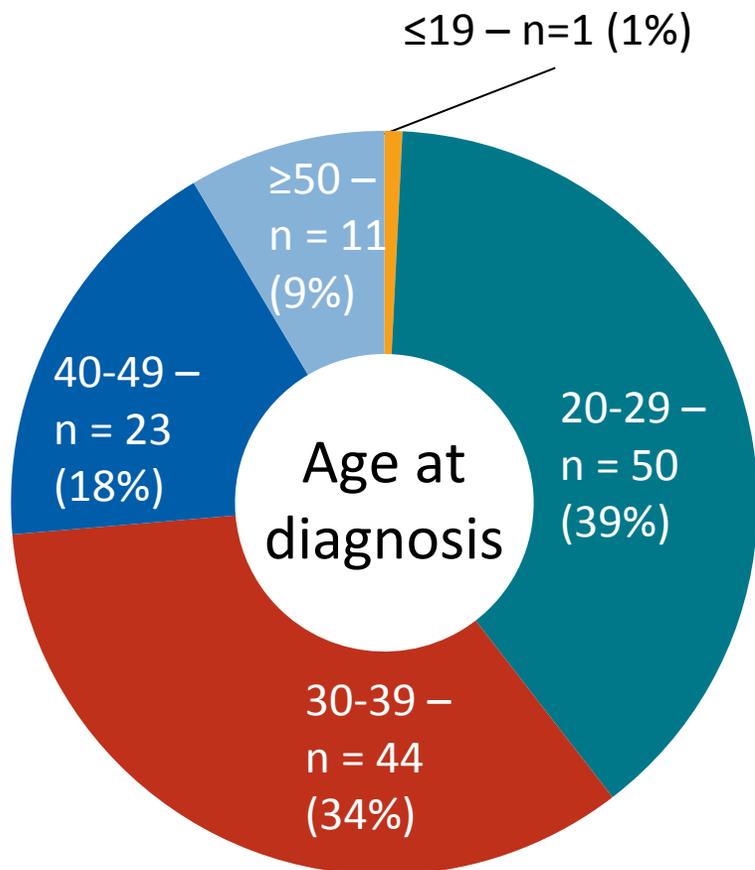
Epidemiological Criteria

Molecular Criteria

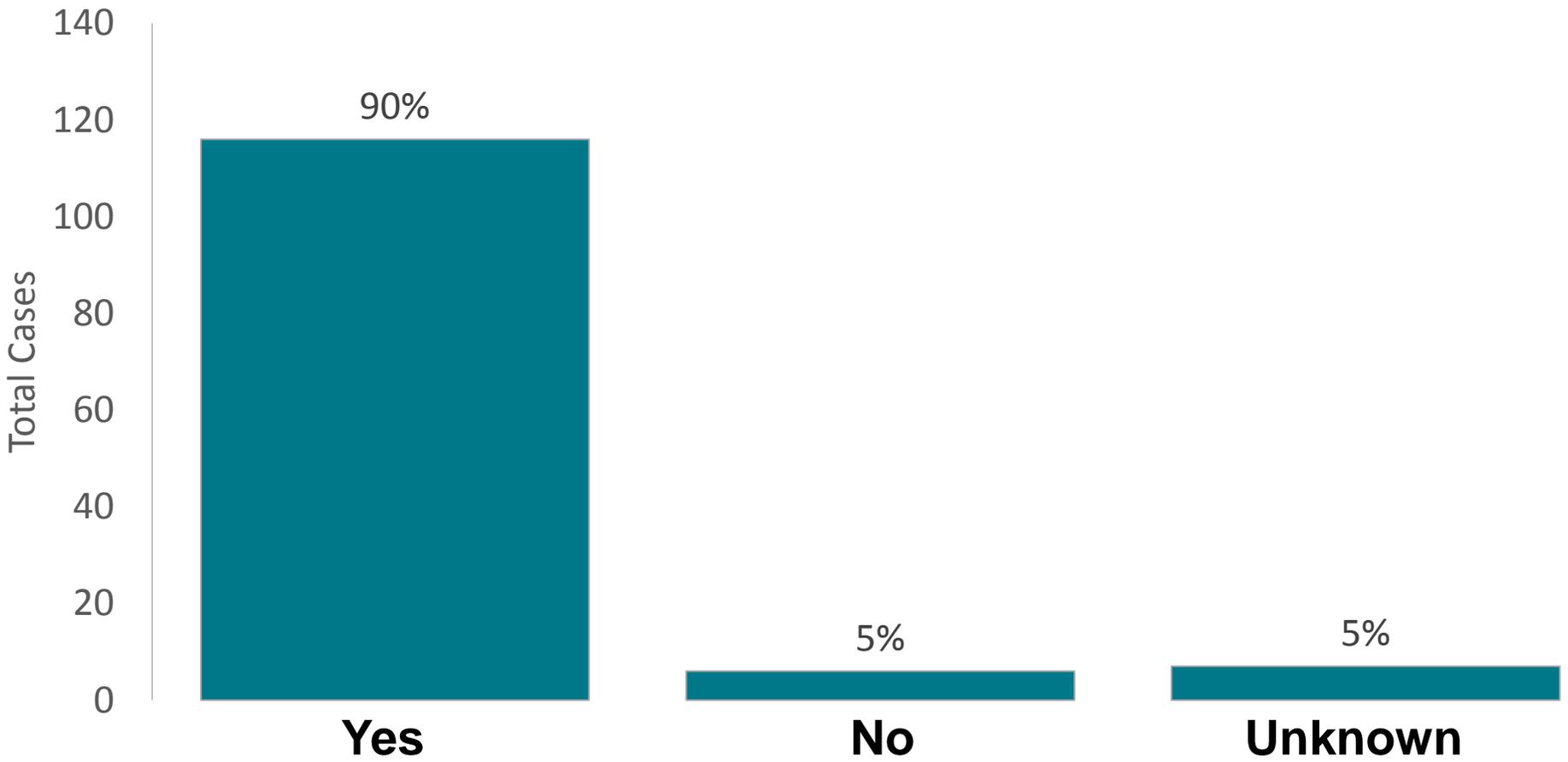
In a person who injects drugs who....



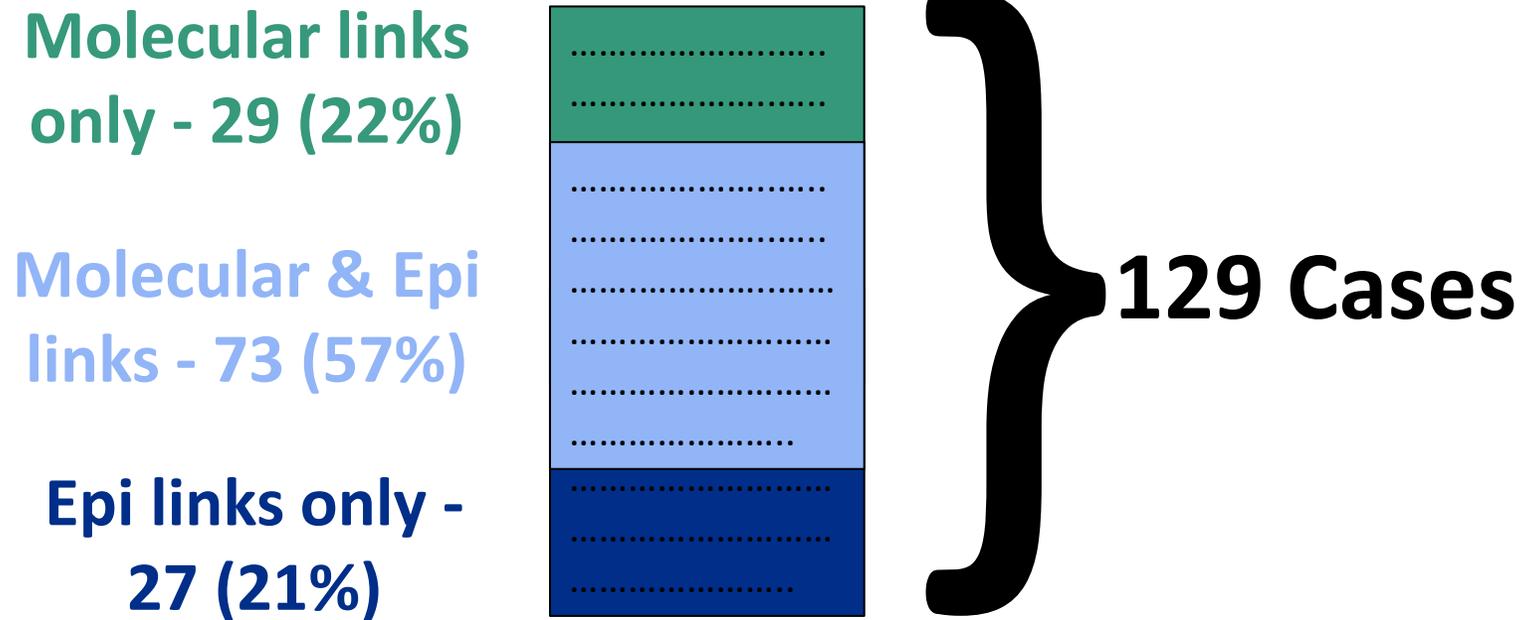
Case Demographics



Most cases had evidence of current or past hepatitis C infection.



Molecular analysis linked many new cases to the investigation.

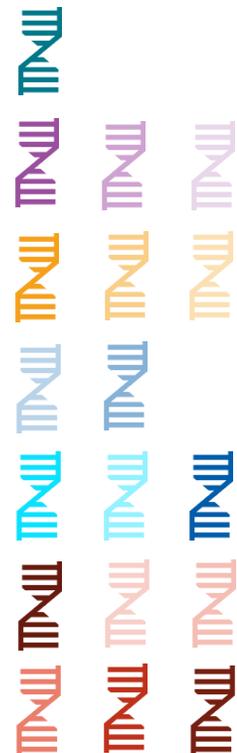


Molecular surveillance is used to determine transmission networks

HIV polymerase gene sequenced in routine care



Similar sequences grouped



Secure
→
HIV-TRACE

Transmission NETWORKS

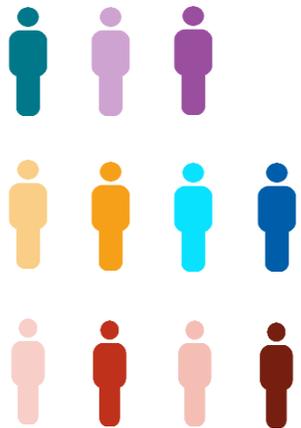


NOT
Directionality of infection



Molecular surveillance is used to determine transmission networks and link cases to an outbreak.

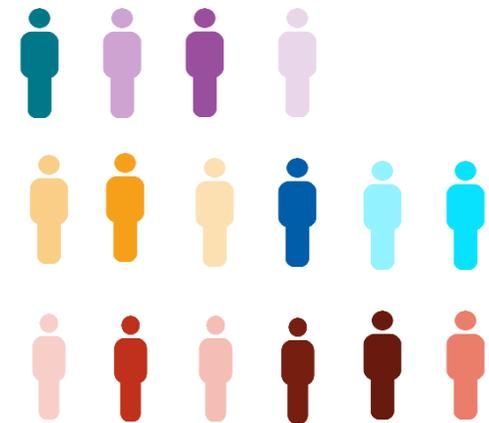
Initial outbreak
line-list



Transmission networks identified
through molecular analysis

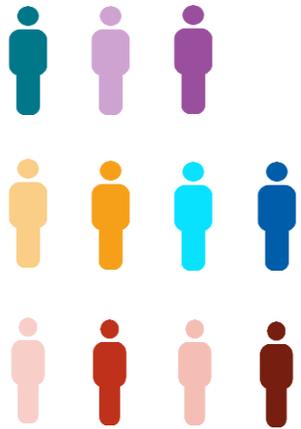


Add cases in same network
as others with known epi link



Molecular analysis linked many new cases to this investigation.

Initial outbreak
line-list

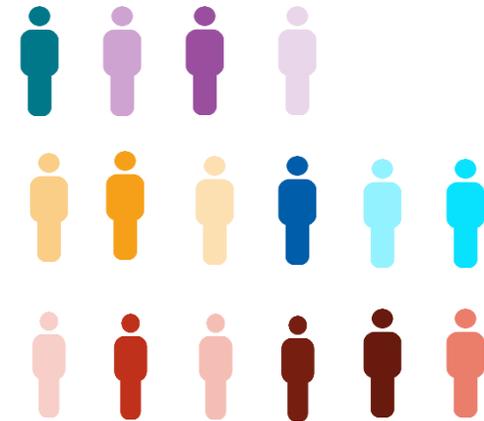


**86 cases on
initial line list**

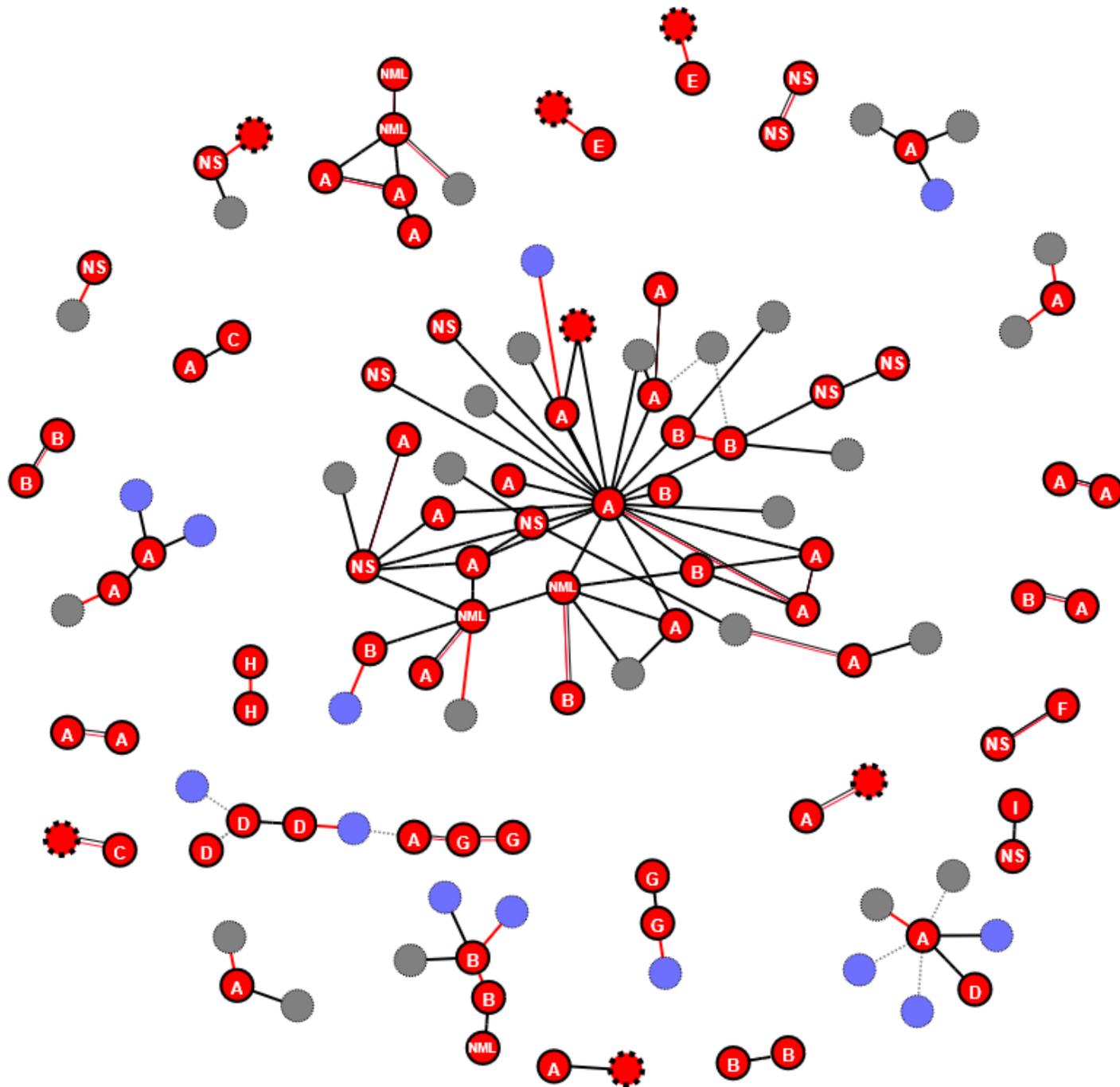
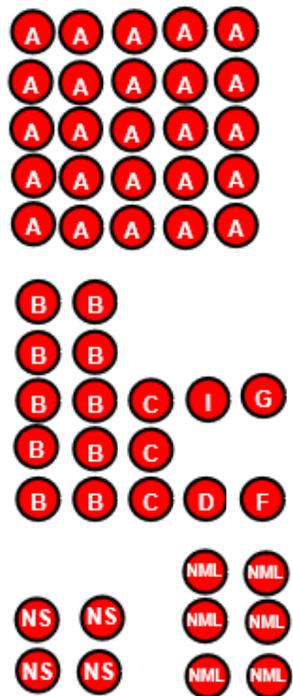
Transmission networks identified
through molecular analysis



Add cases in same network
as others with known epi link



**129 cases
epidemiologically or
molecularly linked**



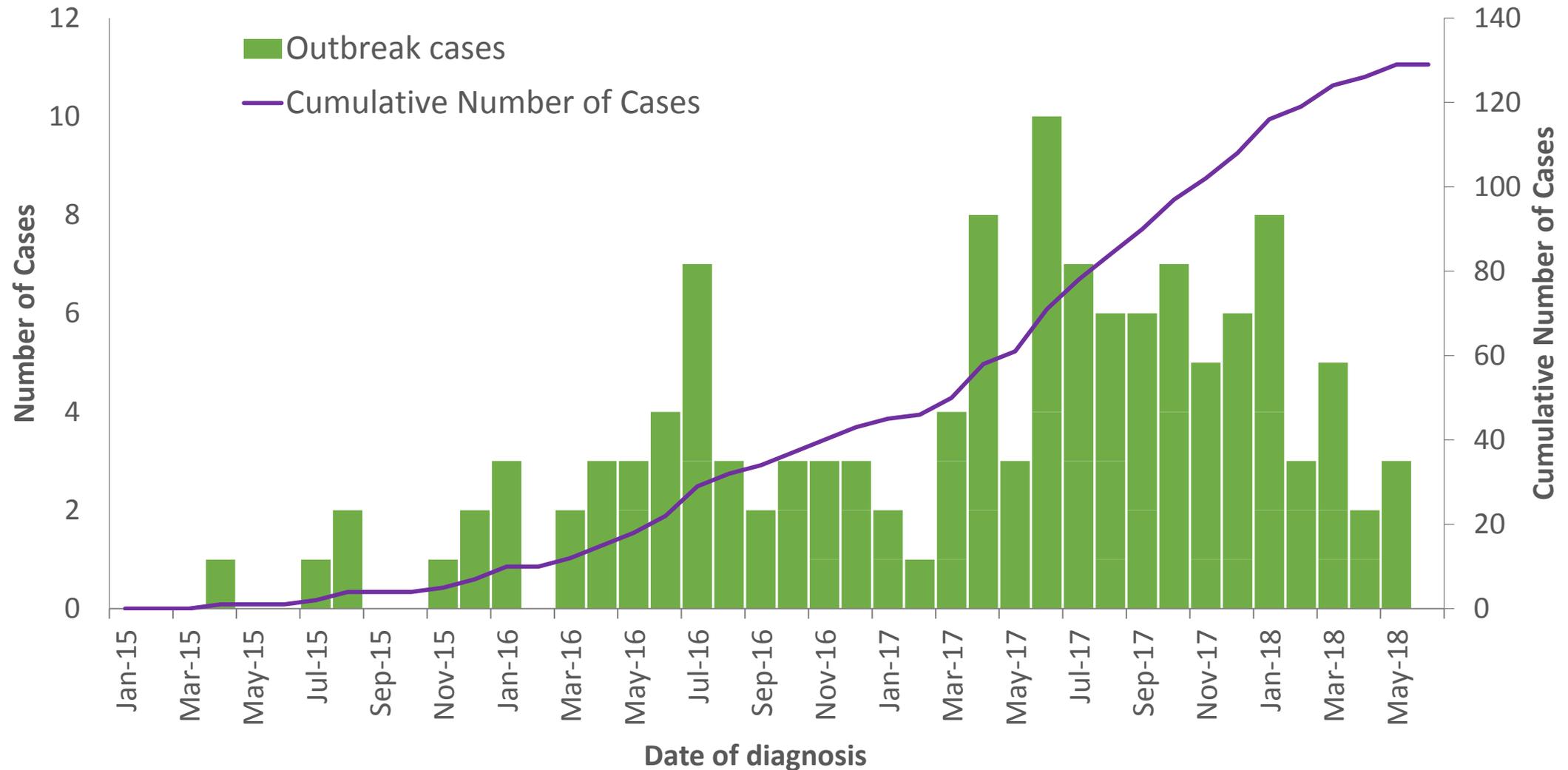
- HIV positive case
- ⚙ HIV positive non-case
- HIV negative
- HIV status unknown
- Injection partner
- Sex partner
- ⋯ Other contact

Molecular Clusters
A, B, C, D, E, F, G, H, I

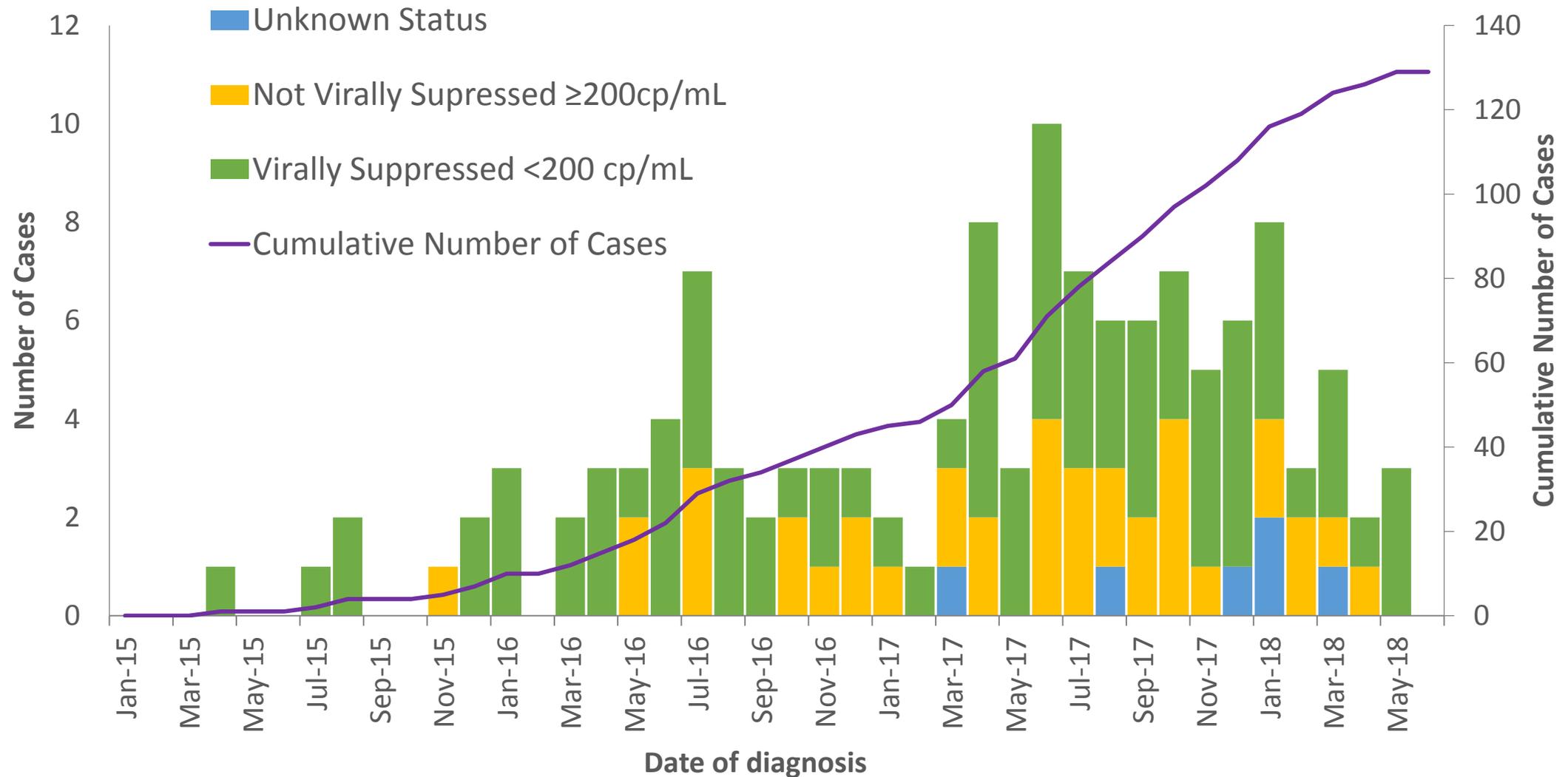
NS – No sequence available

NML – Not molecularly linked to ≥ 1 other case

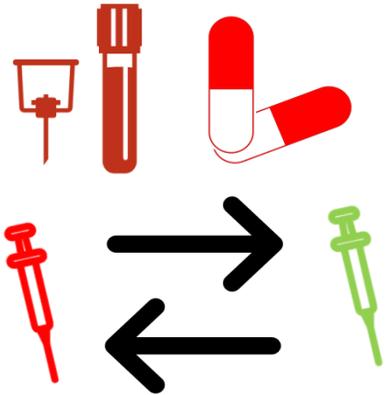
Lowell/Lawrence HIV Cluster Epi Curve



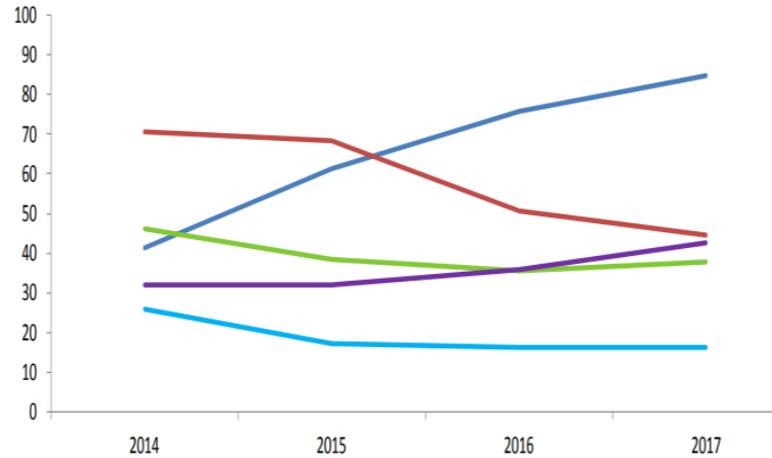
Viral Suppression among Lowell/Lawrence Cluster Cases



Conclusions



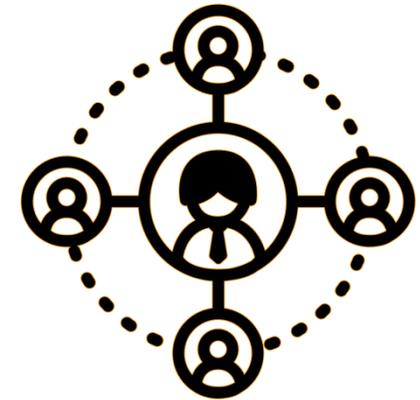
HIV has emerged despite availability of services



Fentanyl has increased opportunity for HIV transmission through more frequent injection



Molecular surveillance helped characterize the outbreak



Partnerships with community stakeholders vital

Public Health Response:

■ Clinical alerts (and attendant media)

- Statewide alert about increasing HIV diagnoses in PWID (November 2017)
- Joint alert with City of Boston about new HIV cluster in PWID (January 2019)
- Following identification of Worcester PWID cluster, statewide outbreak declaration (February 2019)

■ Stakeholder engagement

- local health, first responders, clinicians, HIV services providers, homeless services providers

■ Epi Aid support from CDC (started May 2018)

- Boston Public Health Commission lent their assigned EIS Officer, Dr. Charles Alpren

■ Molecular HIV surveillance initiated

- Increased case count linked to Lowell/Lawrence by 50%

■ Stakeholder and user interviews

- Source of considerable contextual information

■ Doubled state field epidemiology capacity

- Follow-up on all newly diagnosed and out-of-care HIV cases

■ \$1.7M contractual investment in region

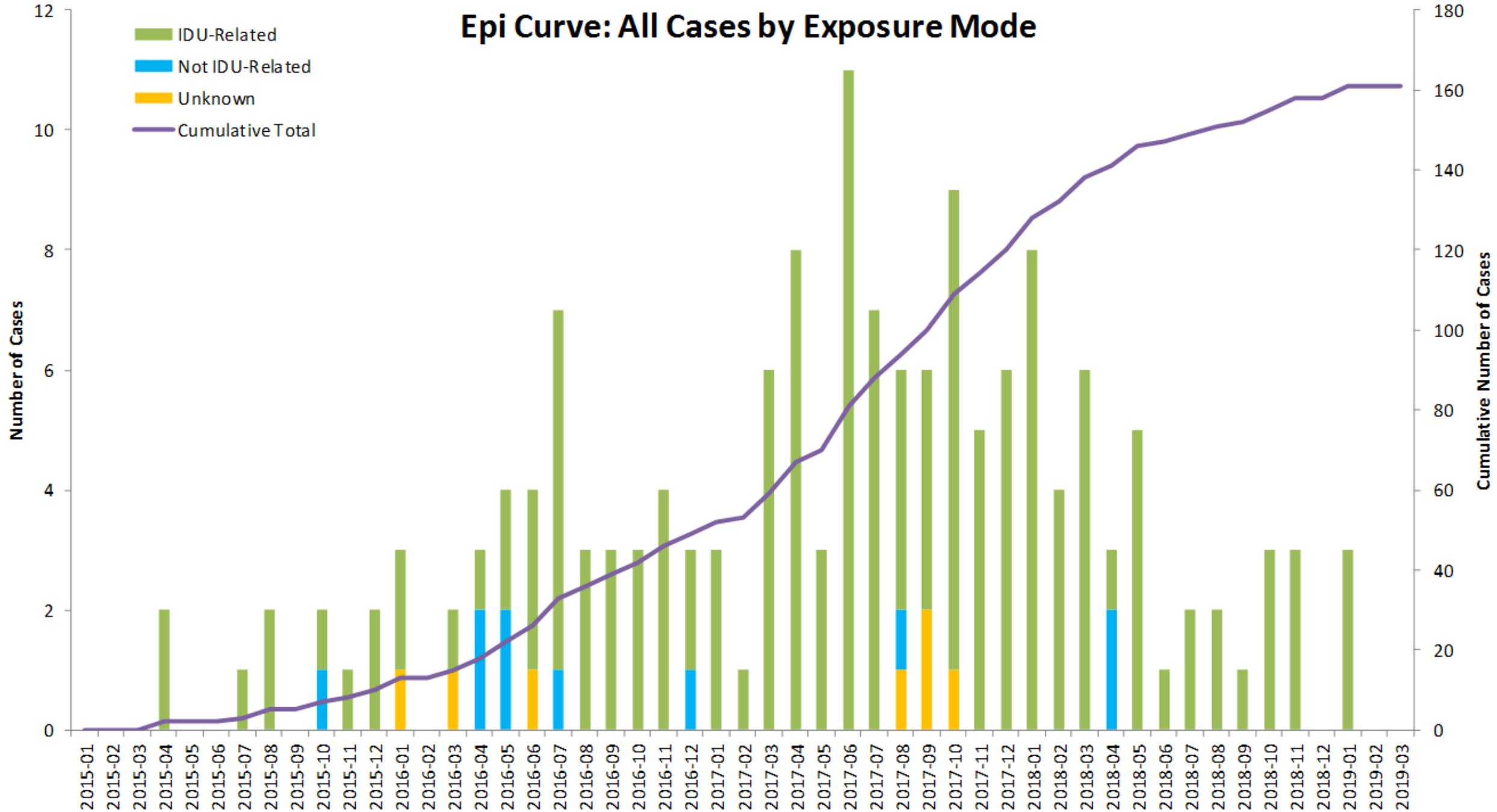
- expanded testing and linkage services, new/expanded SSPs, user-level harm reduction materials, shelter support, first responder training on MAT access, additional ethnographic investigation

Locally approved Syringe Services Programs in Massachusetts (as of March 2019, n=33)



Epi Curve: All Cases by Exposure Mode

- IDU-Related
- Not IDU-Related
- Unknown
- Cumulative Total





Massachusetts Department of Public Health
Bureau of Infectious Disease and Laboratory Sciences

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Opioid Use Fueling HIV Transmission in an Urban Setting: An Outbreak of HIV Infection Among People Who Inject Drugs—Massachusetts, 2015–2018

Charles Alpren MBChB, MPH, Erica L. Dawson PhD, Betsey John MPH, Kevin Cranston MDiv, Nivedha Panneer MPH, H. Dawn Fukuda ScM, Kathleen Roosevelt ... (show all authors)

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Abstract Full Text References Supplements PDF

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Abstract

Section: ▼

Objectives. To describe and control an outbreak of HIV infection among people who inject drugs (PWID).

Methods. The investigation included people diagnosed with HIV infection during 2015 to 2018 linked to 2 cities in northeastern Massachusetts epidemiologically or through molecular analysis. Field activities included qualitative interviews regarding service availability and HIV risk behaviors.

Results. We identified 129 people meeting the case definition; 116 (90%) reported injection drug use. Molecular surveillance added 36 cases to the outbreak not otherwise linked. The 2 largest molecular groups contained 56 and 23 cases. Most interviewed PWID were homeless. Control measures, including enhanced field epidemiology,

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Charles Alpren et al. "Opioid Use Fueling HIV Transmission in an Urban Setting: An Outbreak of HIV Infection Among People Who Inject Drugs—Massachusetts, 2015–2018", *American Journal of Public Health* 110, no. 1 (January 1, 2020): pp. 37-44.

<https://doi.org/10.2105/AJPH.2019.305366>

syringe services programming, and community outreach, resulted in a significant decline in new HIV diagnoses.

Conclusions. We illustrate difficulties with identification and characterization of an outbreak of HIV infection among a population of PWID and the value of an intensive response.

Public Health Implications. Responding to and preventing outbreaks requires ongoing surveillance, with timely detection of increases in HIV diagnoses, community partnerships, and coordinated services, all critical to achieving the goal of the national Ending the HIV Epidemic initiative.

An estimated 92% of new HIV infections in the United States are transmitted by people who are either undiagnosed or diagnosed but not engaged in care.¹ Because timely initiation of antiretroviral therapy enables rapid viral suppression among people with diagnosed HIV, identifying and intervening within transmission networks can effectively prevent HIV spread and reduce incidence. To achieve the ambitious goal of ending the HIV epidemic in the United States,¹ prompt detection and response to clusters of recent and rapid transmission of HIV is increasingly important² and requires integration of surveillance and prevention services and use of both traditional and novel approaches to ensure people living with HIV are diagnosed and linked to care. Molecular epidemiology has been described as transformative in public health as it allows identification of pockets of ongoing transmission of HIV that contact tracing alone may be unable to detect.²

We describe an outbreak of HIV that occurred among people who inject drugs (PWID) in northeastern Massachusetts. The successful identification and response to this outbreak involved stakeholders from across the HIV surveillance, prevention, and treatment community in Massachusetts and included one of the first uses of HIV molecular epidemiology to describe an outbreak and guide the control efforts (K. Buchacz, Centers for Disease Control and Prevention [CDC], e-mail communication, June 11, 2019).

In August 2016, clinicians at a federally qualified health center in Lawrence, Massachusetts, notified the Massachusetts Department of Public Health (MDPH) of 5 HIV diagnoses among PWID. On average, less than 1 case of HIV infection per month among PWID had been reported in Lawrence during 2014 to 2015 from all health care providers. Subsequent investigation resulted in a focus on the cities of

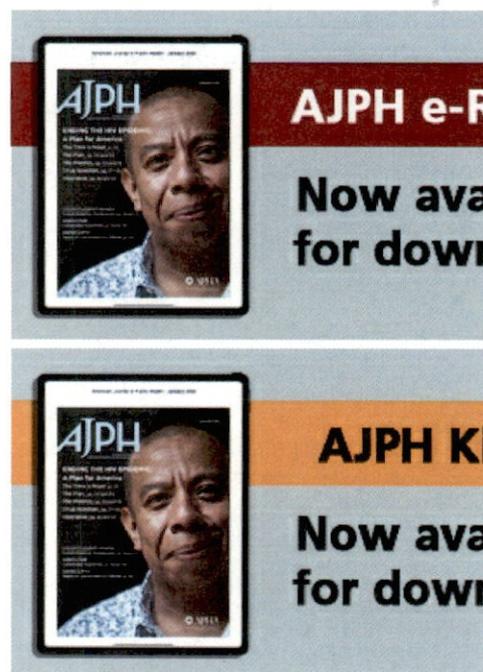
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HIV Outbreak Control With Effective Access to Care and Harm Reduction in North Carolina, 2017–2018
Erika Samoff et al., Am J Public Health, 2020

Lawrence and Lowell, former textile mill towns in the Merrimack Valley of northeastern Massachusetts, with populations of approximately 80 000 and 111 000, respectively.³ These cities have lower median incomes, higher poverty rates,³ and higher rates of both fatal and nonfatal opioid-involved overdoses^{4,5} than the Massachusetts statewide average.

Increases in opioid use, opioid-involved overdoses, and hepatitis C virus (HCV) infections in Massachusetts had raised concern for potential introduction and transmission of HIV through unsafe injection drug use (IDU) practices.⁶ During 2011 to 2015 in Massachusetts, prevalence of opioid use disorder increased by approximately 50%, and the fatal opioid-involved overdose rate more than doubled⁷ to approximately twice the national average in 2014.⁸ During 2012 to 2013, the rate of fatal opioid-involved overdose per 100 000 population increased from 7.8 to 13.0 in Lawrence and from 8.3 to 23.3 in Lowell.⁵ Increasingly, opioid-involved overdose deaths in Massachusetts involve fentanyl, a potent synthetic opioid.⁷ Furthermore, the proportion of HCV cases identified among youths and young adults started to increase dramatically before 2011.⁶

Nevertheless, annual HIV diagnoses among PWID had decreased by 68% during 2006 to 2014.^{9,10} Recent outbreaks of HIV have occurred among PWID in Europe,¹¹ and a 2015 HIV outbreak in Scott County, Indiana, also associated with the opioid crisis, occurred in a rural community in the United States.¹² However, outbreaks had not previously been identified in urban areas of the United States where resources for HIV prevention and substance use disorder treatment are typically more accessible. A cluster of HIV infection among PWID in Seattle, Washington, identified in 2018, demonstrated the vulnerability of PWID, especially those experiencing homelessness, to HIV infection.¹³

In response to the regional increase in HIV diagnoses, MDPH conducted an outbreak investigation with support from the CDC that included case finding, laboratory testing, molecular analysis of HIV gene sequences, epidemiological analysis, and interviews with PWID and local stakeholders. Investigation goals were to describe the outbreak and determine why it happened in an urban Massachusetts location after a long period of increasing opioid use and HCV burden, but with limited previous evidence of significant HIV transmission, and to recommend control measures to reduce HIV transmission among PWID.

Trends in HIV Infection Among Persons Who Inject Drugs: United States and Puerto Rico, 2008–2013

Andrew John Mitsch et al., *Am J Public Health*, 2016

Racial/Ethnic Disparities at the End of an HIV Epidemic: Persons Who Inject Drugs in New York City, 2011–2015

Don C. Des Jarlais et al., *Am J Public Health*, 2017

Estimating the Number of People Who Inject Drugs in A Rural County in Appalachia

Sean T. Allen et al., *Am J Public Health*, 2019

Molecular epidemiology reveals the role of war in the spread of HIV in Ukraine

Alla Scherbinska et al., *Proc Natl Acad Sci U S A*, 2018

Characteristics of HIV-1 Molecular Epidemiology in Suzhou, China, from 2009 to 2014

Ying Yuan et al., *Virologica Sinica*, 2018

HCV elimination: breaking down the barriers to prison based care

Timothy Papaluca et al., *Hepatoma Research*

HCV elimination: breaking down the barriers to prison based care

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After the initial notification by clinicians in August 2016, MDPH used HIV and HCV surveillance data to examine all HIV diagnoses among PWID in northeastern Massachusetts. As a result of the initial investigation, MDPH initiated interventions, including enhanced outreach to PWID to encourage substance use treatment and to increase HIV testing. The Lawrence Board of Health authorized a syringe services program (SSP), which opened in January 2017. In May 2017, MDPH requested remote technical assistance from CDC. During fall 2017, further increases in HIV diagnoses among PWID were reported in both Lawrence and Lowell. In November 2017, MDPH issued a clinical advisory requesting that health care providers increase vigilance for HIV among PWID.¹⁴ MDPH held stakeholder calls in December 2017 and February 2018. On April 30, 2018, MDPH and CDC initiated an enhanced field investigation (Figure 1).

Case Definition and Case Finding

We included cases of HIV infection diagnosed during January 1, 2015, to June 30, 2018, that could be linked epidemiologically or molecularly to the investigation. Epidemiologically linked cases were HIV infections in PWID who received medical care, had experienced homelessness, resided or injected drugs in Lawrence or Lowell, or were injection or sex partners of these individuals. Molecularly linked cases were HIV infections with a partial HIV-1 polymerase (*pol*) gene nucleotide sequence linked at a genetic distance threshold of less than or equal to 0.015 substitutions per site¹⁵ to a sequence from 1 or more cases with a connection to Lawrence or Lowell.

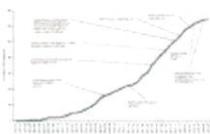


FIGURE 1— Cumulative HIV Diagnoses and Timeline of Investigation and Response to Outbreak of HIV: Massachusetts, 2015–2018

Note. CDC = Centers for Disease Control and Prevention; IDU = injection drug use; MDPH = Massachusetts Department of Public Health; PWID = people who inject drugs; SSP = syringe services program.

MDPH collects demographic, risk, and clinical information on all people who receive a diagnosis of HIV infection; test results from ongoing HIV care, such as CD4+ lymphocyte counts and HIV viral loads are also reported,¹⁶ allowing longitudinal analyses. MDPH field epidemiologists interview people who received a diagnosis of HIV

infection to assist in linkage to care and to identify and notify partners who may benefit from testing or other services.¹⁷ Until November 2017, MDPH limited field follow-up to those with acute HIV infection and as requested by a health care provider.

Laboratory and Analytic Methods

HIV *pol*/gene nucleotide sequences were generated at CDC after polymerase chain reaction amplification, as described elsewhere¹² or at commercial laboratories through similar gene amplification for genotypic testing for drug-resistance mutations. CDC's laboratory analyzed samples through November 2017 (30 samples), after which MDPH rapidly implemented statewide HIV molecular surveillance. Commercial laboratories reported HIV *pol*/sequences to MDPH for Massachusetts residents who had a drug-resistance genotype test conducted as part of routine clinical care during January 2016 to September 2018. The presence of mutations was established through a standard algorithm (<https://hivdb.stanford.edu/hivdb/by-sequences>). We analyzed sequences with Secure HIV-TRACE¹⁸ to identify molecular clusters with a pairwise genetic distance threshold of less than or equal to 0.015 substitutions per site (1.5%) and less than or equal to 0.005 substitutions per site (0.5%).¹⁵

We determined the recency of HIV infection through antibody avidity testing by using the modified Bio-Rad HIV-1/HIV-2 Plus O EIA (Bio-Rad Laboratories, Redmond, WA) as described in detail elsewhere.¹⁸ We defined recent infection as an avidity index of less than or equal to 30%, indicating estimated infection within 221 days (95% confidence limits: 203.6, 238.7 days). We used MicrobeTrace (<https://github.com/CDCgov/MicrobeTRACE/wiki>) to construct diagrams of connections between cases and named contacts and of molecular links among cases to allow integration and visualization of both genetic and partner groups (Figure 2).

Assessment of Service Availability and Risk Behavior

To provide local context and to understand service availability, access, and HIV risk behaviors among PWID (including both drug use and sexual risk), we conducted semistructured interviews with stakeholders and both HIV-infected

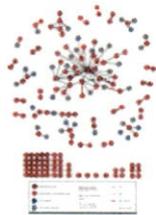


FIGURE 2— Network Diagram of Needle Sharing or Sex Partner Interactions, as of September 30, 2018, Stratified by HIV Status and

and non-HIV-infected PWID distinct from field epidemiology interviews. To be eligible for stakeholder interviews, participants needed to work with PWID in Lawrence or Lowell. Eligible PWID were aged 18 years or older, resided in Lowell or Lawrence, and reported IDU during the past 12 months.

Molecular Cluster: Massachusetts, January 2015–June 2018

We selected PWID for in-depth interviews by using a purposeful sampling technique to ensure variation based on sex, engagement in care, HIV status, and city of residence. Local stakeholders assisted investigators in identifying potential participants. Participants provided verbal consent and were reimbursed for their time.

RESULTS

Section: ▾

As of June 30, 2018, the conclusion of the intensive field investigation, a total of 129 people met the case definition. Ninety-four (73%) had received a diagnosis of HIV infection when aged 20 to 39 years, 55 (43%) were female, and 87 (67%) were non-Hispanic White (Table 1). The most commonly reported exposure mode was IDU (n = 111; 86%), with smaller percentages reporting male-to-male sexual contact and IDU (n = 5; 4%), male-to-male sexual contact only (n = 1; 1%), heterosexual contact or presumed heterosexual contact (n = 7; 6%), and no risk identified (n = 5; 4%; Table A, available as a supplement to the online version of this article at <http://www.ajph.org>). The initial CD4+ lymphocyte count was greater than or equal to 200 cells per cubic millimeter for 115 (89%) people, and the median earliest CD4+ count was 547 cells per cubic millimeter (Table A). Diagnoses peaked from April 2017 to January 2018 (Figure A, available as a supplement to the online version of this article at <http://www.ajph.org>). Of 116 (90%) individuals positive for either HCV antibody (indicating past or current infection) or HCV RNA (indicating current infection), 99 received a positive HCV test result before receiving the HIV diagnosis. A positive HCV antibody or RNA-positive test result was first recorded by MDPH at a mean of 56 (median = 45) months before HIV diagnosis.



**TABLE 1—
Demographic Characteristics of Individuals Linked to an HIV Outbreak During January 1, 2015, to June 30, 2018: Massachusetts**

During October 2017 to September 2018, viral load results were reported to MDPH for 113 (88%) cases, providing the most recent viral load test result taken within a year of analysis and allowing at least 3 months from latest possible time of diagnosis for viral suppression to be achieved. The most recently reported viral load during this period was less than 200 copies per milliliter (viral suppression) for 81 (63%) of 129, with a higher frequency of viral suppression among people who received a diagnosis during earlier years (Figure A).

Molecular Analysis and Recency Testing

Of 113 cases with available *pol* sequences, 102 (90%) were molecularly linked to 1 or more other cases at a genetic distance of less than or equal to 1.5%; of these, 93 linked to another case at a genetic distance of less than or equal to 0.5%. The linkages at a genetic distance of less than or equal to 1.5% formed 9 groups of 2 or more people, the 2 largest of which had 56 and 23 individuals, both including people from both Lawrence and Lowell. Of 129 cases, 36 (28%) without previously identified epidemiological links were initially linked by molecular analysis; by September 30, 2018, epidemiological links had been identified for 7 of these cases. As of September 30, 2018, 27 (21%) cases were only epidemiologically linked, 29 (22%) were only molecularly linked, and 73 (57%) were linked by both methods.

All cases in the 2 largest molecular clusters were HIV-1 subtype B. In the largest cluster, all *pol* sequences except 1 shared the nonnucleoside reverse transcriptase drug-resistance mutation K103N, which confers high-level resistance to nevirapine and efavirenz.

Of the 30 specimens tested for antibody avidity, 17 tested as recent (within 221 days) infections, and 13 were established infections. All people with results indicative of recent infection received HIV diagnoses within 3 months preceding specimen collection, and none were receiving antiretroviral treatment at the time of diagnosis.

Field Epidemiology

By September 30, 2018, field follow-up had been initiated for 120 (93%) people. Seventy-two interviewed individuals named 172 total contacts, representing 112 unique people. The 172 contact linkages formed 26 groups of 2 to 44 people. Seven groups included people from more than 1 molecular cluster (Figure 2). Needle sharing only accounted for 54% of partnerships; needle sharing and sex for 29%, and sex only for 17%. Ninety-eight (88%) named contacts had known

connections to Lawrence or Lowell. Of 112 named contacts, 27 (24%) could not be contacted and were not tested for HIV infection, 13 (12%) tested HIV-negative, and 72 (64%) tested HIV-positive (Table B, available as a supplement to the online version of this article at <http://www.ajph.org>). Of these 72 people, 37 (51%) had received an HIV diagnosis before field epidemiology contact, 30 (42%) received HIV diagnoses because of field epidemiology contact, and 5 (7%) could not have a determination made based on available information.

In-Depth Interviews

Among 34 PWID interviewed, 20 reported injecting opioids, 4 stimulants, and 10 a combination of opioids and stimulants. Seven, all of whom used opioids, reported injecting more than 10 times per day. The increased frequency of injection associated with the introduction of fentanyl into the drug supply was prominent in interview responses. PWID were aware of the outbreak and of harm-reduction services in the area. PWID also reported frequent sharing of injection equipment and sharing of syringes when other options were unavailable. Sexual risk behavior for both women and men included exchanging sex for payment or drugs. All PWID interviewed had experienced homelessness within the past year.

We interviewed 19 stakeholders, including providers of substance use disorder services, HIV and emergency care, public health services, homelessness services, and law enforcement. Stakeholder interviews corroborated frequent injections associated with fentanyl use and common experiences of homelessness and incarceration among PWID. Prevention services in the region included an MDPH-funded SSP in Lawrence open 40 hours per week since January 2017, a privately funded SSP in Lowell open 4 hours per week since March 2018, and a privately funded mobile SSP that distributed injection equipment from a vehicle in both cities. SSPs distributed approximately 10 000 syringes in Lawrence in April 2018. Community health centers, hospital clinics, and private practices provided HIV testing, medication-assisted treatment, and HIV treatment in both cities; however, these services were not provided at emergency departments where PWID often presented for care¹⁹ or homeless shelters. The clinical advisory issued by MDPH in November 2017 had not reached all targeted stakeholders by their report.

Public Health Response

In November 2017, in response to the outbreak, MDPH extended field epidemiology follow-up to people with new HIV diagnoses attributed to IDU and HIV diagnoses among people with positive HCV RNA or antibody results reported in the state’s surveillance system. In May 2018, following a doubling of the team of field epidemiologists in Massachusetts, this was further extended to all new HIV diagnoses. Community involvement in response to the outbreak included consultative stakeholder meetings at the beginning and end of intensive field investigations that heightened stakeholder vigilance for HIV among PWID. SSP opening hours increased. An SSP in Lowell funded by MDPH following approval by the Lowell Board of Health was established in August 2018. HIV testing services were extended to emergency departments, homeless shelters, and jails. Total new HIV-related investment in the region by MDPH exceeded \$1.7 million.

Following these interventions, MDPH surveillance recognized a substantial decrease in new IDU-related HIV diagnoses in the area. By June 4, 2019, the outbreak, including diagnoses since June 2018, had increased to 166 cases (35 only epidemiologically linked, 36 only molecularly linked, and 95 both epidemiologically and molecularly linked), including 7 outbreak-linked HIV diagnosis reports received in 2019, all between January and March). The outbreak-associated cases accounted for 52% of all HIV infection among PWID statewide in 2016 to 2017 and for all the increase in cases of HIV infection in PWID statewide (Figure 3).

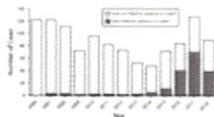


FIGURE 3— Diagnoses of HIV Among People Who Inject Drugs Statewide Showing Cases Linked to Lawrence and Lowell, Massachusetts: 2006–2018

^a2018 data are preliminary.

DISCUSSION

Section: ▼ ▲

This outbreak of HIV infection, primarily among PWID, occurred in an urban area with longstanding opioid-related problems.^{4,5} Unsafe injection practices were frequently reported. High-risk sexual behavior

was also reported, and transmission of HIV occurred among people linked to the outbreak who did not report IDU. Molecular analysis supplemented field epidemiology, allowing characterization of the full extent of the outbreak and of networks of HIV transmission in circumstances in which interviews could not be conducted, and illustrated multiple introductions of HIV.

Beyond increasing the risk for overdose, fentanyl has been associated with more frequent injections because of its faster onset of effect and shorter duration of action.⁴ Participants in the qualitative interviews who used opioids reported frequent injection, sometimes more than 10 times per day. Having decreased from 2006 to 2014,¹⁰ annual new HIV diagnoses among PWID in Massachusetts increased beginning in 2015, shortly after fentanyl emerged in the drug supply.^{4,7} A large proportion of this increase related to the outbreak, and a number of cases reported in other parts of the state were linked to the outbreak (Figure 2).

Syringe distribution through SSPs was insufficient for the high frequency of injection associated with fentanyl use. Increasing access to sterile injection equipment in hard-to-reach populations requires novel approaches, including mobile SSPs and encouragement of secondary syringe exchange, and programs to address community concerns.²⁰ SSP and medication-assisted treatment use decrease the risk for HCV infection^{21,22} and HIV^{23,24} transmission among PWID and help prevent outbreaks of HIV associated with IDU²⁴ by reducing sharing of injection equipment and frequency of injection, respectively. Shortly after the intensive field investigation, the Lowell Board of Health authorized an SSP; SSP funding from MDPH followed. MDPH expanded HIV testing through mobile testing services at SSPs and homeless shelters, and engagement with hospital emergency departments and substance use disorder treatment centers. MDPH has hired additional field epidemiologists and expanded follow-up to all people with newly diagnosed HIV infection.

Laboratory testing indicates that HIV infection was being diagnosed early in the course of disease for many, but not all, patients in this investigation. The median earliest CD4+ lymphocyte count (547 cells/mm³) was higher in this outbreak than in Massachusetts overall during a similar time period (398 cells/mm³; K. Cranston, MDPH, oral communication, November 9, 2018). Of the 30 samples available for antibody avidity recency testing, 17 (57%) indicated recent infection. Furthermore, the high proportion of cases molecularly linked at a

genetic distance of less than or equal to 0.5% indicated recent transmission.

Despite very high health insurance coverage in Massachusetts³ and all participants in qualitative interviews reporting having health insurance, challenges remain with engagement in and adherence to treatment and retention in care for people living with HIV. As of September 30, 2018, HIV viral suppression had been achieved in 63% of cases, and 12% had not had a viral load test within the previous year, compared with 79% viral suppression among all cases of HIV diagnosed across Massachusetts during 2015, as measured on January 1, 2018.²⁵

Service providers cited homelessness and incarceration as common stressors for PWID. High levels of mobility and social instability may lead PWID to seek care in multiple locations, resulting in fragmentation of care or no care at all. Unpredictable release dates from incarceration and difficulty coordinating transition to care after release can produce interruptions in HIV care,²⁶ which providers noted despite MDPH-funded linkage-to-care services associated with county jails.

Astute clinicians noticed the increase above baseline in HIV diagnoses among PWID and notified MDPH. The local knowledge of stakeholders was valuable in understanding the context in which the outbreak developed and in guiding investigation and control efforts including provision of care and other services. Community meetings held at the start and end of intensive field investigations facilitated collaboration and introduction of HIV testing in homeless shelters. Despite the issuance of a clinical advisory, some stakeholders were unaware of the increase in HIV diagnoses early in the course of the outbreak. This revealed opportunities for improvement in communication among MDPH, local health departments, and other stakeholders.

Limitations to this investigation and outbreak response include the limited field epidemiology resources that constrained contact tracing. Although the providers we spoke to stressed the wide penetration of fentanyl into the local opioid supply, we were not able to review toxicology results from case-patients, and field epidemiology interviews did not ask about types of drugs used where individuals reported IDU. Results of qualitative interviews cannot be generalized to outbreak cases or the population of PWID. The investigation and publicity about the outbreak could have increased awareness among

PWID of the outbreak and local services. Although we explored temporal trends in volume of HIV testing and results of tests performed at the Massachusetts State Public Health Laboratory (data not shown), we lacked access to data from private laboratories and could not gauge the total volume of HIV testing over time. However, the number of positive HIV tests reported to MDPH from all clinical laboratories in the state and the proportion of positive tests performed at the Massachusetts State Public Health Laboratory remained consistent over the past decade, indicating that testing availability has been consistent. Furthermore, the median earliest CD4+ count was higher among those involved in this outbreak than among all cases of HIV diagnosed in the state, indicating that testing is accessed by PWID in Lawrence and Lowell.

To conclude, despite health insurance coverage and harm-reduction services, HIV emerged among PWID in the context of homelessness, incarceration, and other determinants of HIV risk.²⁷ Because of more frequent injection, fentanyl may have increased the opportunity for HIV transmission. Similar environments exist in many other US cities, especially in Massachusetts and across New England where fentanyl is widespread.^{28,29}

Longstanding community partnerships helped with detection and response to this outbreak and illustrate the importance of collaborations between public health and local stakeholders. Molecular surveillance helped characterize this outbreak, and its expanded use will aid future outbreak detection and characterization to enable prompt investigation and intervention. The decline in new outbreak-linked HIV diagnoses since the implementation of control measures demonstrates the value of a timely response to an increase in HIV diagnoses.

Prevention of future outbreaks will require the preemptive deployment of services, including SSPs, medication-assisted treatment for opioid use disorder,³⁰ targeted HIV testing, and case management to minimize HIV transmission among PWID and maximize retention in care and viral suppression among people living with HIV. National efforts to eradicate HIV infection depend on this level of readiness and response, particularly in populations such as PWID with currently low rates of new HIV infection, but with the potential for viral reintroduction and rapid transmission.

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CONFLICTS OF INTEREST

The authors have no conflicts of interest to declare.

HUMAN PARTICIPANT PROTECTION

The investigation was approved by CDC as a nonresearch disease control activity in accordance with federal human participant protection regulations and CDC policies and procedures.

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Board of Health Meeting – February 5, 2019
Community Health Division, Lowell Health Department

Community Health Coordinator (CHC)
Kate Elkins

Healthy Lowell Week

- In recognition of National Public Health Week, the Health Department (HD) will be once again coordinating “Healthy Lowell Week” taking place this year from April 6-12, 2020 in partnership with the Greater Lowell Health Alliance, Lowell General Hospital, Lowell Community Health Center, UMass Lowell, and other community partners
 - *Event schedule can be found at <https://bit.ly/healthylowellweek>*
- Additional activities will take place during the week at the HD, such as staff participation in the Mass DPH Ounce of Prevention Conference and efforts to recognize and appreciate HD employees

Healthy Living in Lowell

- The CHC produced a February episode of Healthy Living in Lowell focused on Stroke Health and featuring Silvana Flynn from Lowell General Hospital.
- A March show will focus on women’s health.

Access to Equitable Physical Activity

- The City of Lowell was awarded a grant from the Blue Cross Blue Shield of Massachusetts Foundation to establish more equitable opportunities for physical activity in Lowell over a three-year period.
- The walking routes project, now named, “Healthy Walking Trails” is moving along and the CHC will be working with the Planning and Development department to perform outreach in the Centralville neighborhood to get the project off the ground.

Employee Health and Wellness

- The CHC and the city’s health and wellness committee created a schedule of programs for the 2020 calendar year and submitted a memo to the City Manager’s office. *Schedule attached.*

Vision 2020 Grant

- The Health Department was awarded funding from the Greater Lowell Health Alliance in October to implement a new vision program within the School Health Unit. This grant will assist with better screening equipment for our youngest children and an enhanced vision referral system. The CHC wrote the grant and is now assisting the School Health Unit with some of the grant objectives.
- A Welch Allyn SPOT vision screener has been procured and testing of students 3-5 years of age has begun. The Vision Screeners are excited to have this state of the art machine to use.
- Prevent Blindness is continuing to consult on improved referrals systems and so far has provided us with a systems flow chart, updated letters to parents, updated physician result forms, and more.

Spacers for Kids Project

- The Greater Lowell Health Alliance awarded the Greater Lowell Community Foundation (GLCF) with grant funds to launch a new initiative titled, Asthma Spacers for School Kids. This program aims to provide free spacers to school-aged children with a known asthma diagnosis in the Greater Lowell region.
- Spacers have been distributed to the school nurses for distribution to students.

Sun Safety Initiative

- The CHC will once again work with Impact Melanoma to provide sun safety programming and education for the 2020 summer season. In addition to the five water sites where sunscreen dispense kiosks were placed, we will add up to 8 new dispensers at athletic fields and recreation camps – all dispensers are free and open to the public.

Additional Notes

- The CHC is planning a maternity leave for April – July and is actively working on planning for this process during this time.
- The CHC has two interns this semester, Michael Rivera from UML and Victoria Consuelo from Northern Essex CC.
- The CHC is assisting the Substance Abuse and Prevention division in applying for a federal SAMHSA grant.

City of Lowell Employee Health and Wellness Program

Mission: To provide all employees with the resources and support they need to take action in achieving optimal health and wellness.

Timeline: 2020 Calendar Year

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Admin Tasks	Steering Committee Meets	x	x	x	x	x	x	x	x	x	x	x	x
	Send Memo to City Manager for 2020 plans	x											
	Biometric Screening Program Research						x	x	x				
	Planning for 2021											x	x
Programs	Monthly Health and Wellness E-Blast	x	x	x	x	x	x	x	x	x	x	x	x
	Onsite Wellness Program	x	x	x	x	x	x			x	x	x	x
	Wellness Tracking Platform	x	x	x	x	x	x	x	x	x	x	x	x
	Employee Step Challenge				x	x				x	x		
	Employee Community Service		x		x	x				x			
	Employee Health and Wellness Fair										x		

Additional: Offer "mini-grants" to departments that want to host their own health and wellness activities, if funds are available.

Lowell Health Department Public Health Nursing

December 2019

Submitted by Colleen da Silva, RN, BSN

Communicable Diseases Reported

<u>Disease</u>	<u>Dec. 2018</u>	<u>Dec. 2019</u>	<u>2018 Total</u>	<u>2019 Total</u>
Amebiasis				
Anthrax			1	
Arbovirus	1		2	1
Babesiosis			4	1
Borrelia miyamotoi infection			1	
Botulism	1		1	
Calicivirus/Norovirus	2		5	2
Campylobacteriosis	1	1	15	15
Clostridium perfringens			1	
Cryptococcus neoformans			1	1
Cryptosporidiosis	5		19	10
Cyclosporiasis				1
Dengue Fever			1	2
Ehrlichiosis			1	3
Enterovirus				
Giardiasis	1	2	16	27
Group A Streptococcus	2	7	59	57
Group B Streptococcus	1	1	14	11
Haemophilus Influenzae			1	2
Hepatitis A	2	1	8	12
Hepatitis B	6	9	117	113
Hepatitis C	17	13	212	202
Hepatitis D				1
Human Granulocytic Anaplasmosis			11	3
Influenza	157	220	1726	1233
Invasive bacterial infection (other)			1	2
Legionellosis	1		11	9
Lyme Disease	2	1	74	66
Malaria	1		2	3
Measles			1 confirmed 29 contacts 10 revoked	7 revoked
Meningitis – Unknown Type		1	1	4
Meningococcal Disease				1

Mumps			1 probable 1 revoked 2 suspect	1 revoked 1 suspect
Pertussis (and other Bordatella species)			1	1
Rocky Mountain Spotted Fever			1	
Rubella			1	
Salmonellosis	1		18	21
Shiga toxin producing organism			1	
Shigellosis			1	1
Streptococcus pneumoniae	3		19	5
Toxoplasmosis			1	
Varicella			9	15
Viral Meningitis (aseptic)			1	2
West Nile Virus Infection				1
Yersiniosis				
Zika Virus Infection			1	

*denotes case is connected to a foodborne illness investigation

Tuberculosis Cases Reported

	<u>Dec. 2018</u>	<u>Dec. 2019</u>	<u>2018 Total</u>	<u>2019 YTD</u>
TB LTBI	25	37	341	377
TB Active	0	1 revoked	9 confirmed 19 revoked	10 confirmed 11 revoked 2 suspect
B1 Waivers	0	0	14	9

Total of 37 DOTs done in December 2019

Refugee Arrivals

Total Families/Total Persons

<u>Dec. 2018</u>	<u>Dec. 2019</u>	<u>2018 Total</u>	<u>2019 Total</u>
1/4	6/10	29/76	27/80

Immunizations

<u>Vaccine</u>	<u>Dec. 2018</u>	<u>Dec. 2019</u>	<u>2018 Total</u>	<u>2019 Total</u>
Influenza	1	0	372	331
Hepatitis A	4	0	4	0

Public Health Nurse Activities

Participated in Medication Take Back Day held at Health Department

Attended Health and Medical Care Coalition (HMCC) quarterly meeting in Reading

Attended Mass. Assoc. of Public Health Nurses meeting at Tewksbury State Hospital

Participated in 2nd Planning Meeting for Emerging Infectious Disease Table Top Exercise that will be held in January 2020.

Public Health Nurse Manager Activities

Participated in Medication Take Back Day held at Health Department

Attended Health and Medical Care Coalition (HMCC) quarterly meeting in Reading

Attended Mass. Assoc. of Public Health Nurses meeting at Tewksbury State Hospital

Participated in 2nd Planning Meeting for Emerging Infectious Disease Table Top Exercise that will be held in January 2020.

Board of Health December 2019

School Health Unit

Nurse Coordinator and Clinical Managers worked in collaboration at the following meetings : School Department Health & Wellness Committee, Greater Lowell Asthma Coalition Committee. Nurse Coordinator attended the Greater Lowell Community Foundation Board meeting to thank them for the 2000 spacers that they gave to the Health Department to distribute to the Lowell Public School students who have asthma and to explain to them the importance of the use of a spacer when using an inhaler. Also met with LHC vision staff so we can work in collaboration with them to increase the number of students to receive a comprehensive eye exam after having failed our vision screen and the results will be shared with the School Nurse.

School Nursing Services Provided	18-Dec	19-Dec	Total 18-19	YTD 2018	YTD 2019
Total Student Encounters					
Totals	12,567	9,742	135,213	55,910	55,991
911 Emergency Calls					
Student	7	7	68	34	25
Staff	-	2	14	10	7
Medication Administration					
Totals	3,724	2,906	44,159	15,948	14,633
Nursing Assessment					
Student	7,731	6,225	86,821	37,419	38,136
Staff	41	37	385	205	173
Glucose Testing	551	437	6,631	2,771	2,541
Nausea/vomiting	999	727	11,071	4,336	4,101
Tube Feedings	202	124	2,473	799	707
pulse Oximetry	10	9	328	67	71
Screenings					
Vision	529	672	9,116	4,309	3,681
Hearing	610	677	7,098	3,070	2,689
BMI	507	429	2,919	1,192	1,802
Postural	123	479	4,304	367	776

Board of Health Report – February 5th, 2020

Substance Abuse and Prevention Division, Lowell Health Department

Substance Abuse Coordinator, Division Manager

Lainnie Emond, LMHC

Prescription Drug Monitoring Program (PDMP) Grant Initiatives:

- Continuing to work with the Co-Chairs of the Mayor’s Opioid Epidemic Crisis Task Force to plan monthly meeting agendas, identify potential initiatives, contact presenters, and invite new agencies to participate.
 - *Recent and Upcoming Meetings: January 27th and February 24th from 5:30-6:30pm.*
- Continuing to lead Data Subcommittee of the Mayor’s Opioid Task Force. Subcommittee members are working to finalize the fifth “Opioid Trends in Lowell, MA” report, which focuses on HIV and opioid-overdose risk factors in Lowell. The Data Subcommittee is also working to create a “2019 Summary” report that reviews data for fatal and nonfatal opioid overdoses, as well as highlights successes of our community partners.
- Continuing to co-lead Media Subcommittee meeting of the Mayor’s Opioid Task Force. Subcommittee released a press release highlighting winter weather risk factors for opioid overdose.
- Continuing to working to identify a specific documentation system to demonstrate how the Substance Abuse Coordinator (SAC) position and the Substance Abuse and Prevention Division have impacted the Lowell Health Department and provider community. This information is important to incorporate into grant reporting as the SAC position has positively expanded beyond the expectations written into the grant.

Lowell CO-OP and Related Efforts:

- Lainnie continues to be involved in administrative planning for the Lowell CO-OP, including co-facilitating Lowell CO-OP Supervisors Meetings and working with team and grant partners to ensure effectiveness of the team.
- Lainnie and Maricia, the Lowell CO-OP Supervisor, held first and second round interviews for the Clinical Recovery Specialist position. A candidate recommendation has been made.

Additional Substance Abuse Coordinator Activities:

- Managing daily activities of the Substance Abuse and Prevention Division.
- Lainnie continues to be the point person for www.DrugFreeGreaterLowell.org. Marketing materials have been designed and are being distributed to partners in Greater Lowell, which include an email signature, social medial images, 11x18 foam boards, business cards, and pens.
- Lainnie will be attending the Community Anti-Drug Coalitions of America (CADCA) Annual National Leadership Forum from February 3rd through February 7th. Expenses are paid for by the Tewksbury Substance Abuse Prevention Collaboration, which Lainnie is a member of.
- Lainnie is continuing to work with colleagues from Tufts University and Trinity EMS to work on a scientific research paper examining how EMS interacts with patients prior to experiencing a fatal overdose.

Massachusetts Opioid Abuse Prevention Collaborative (MOAPC)

*** Lainnie Emond will oversee the MOAPC Grant through the end of the grant cycle, June 30th, 2019. ***

Strategy One (implement Life Skills Training across the cluster): *Life Skills Training is an evidenced based prevention curriculum supported by the Bureau of Substance Addiction Services.*

- No updates at this time.

Grant Strategy Two (coordination and promotion of education on harm reduction strategies):

- Several organizations within the MOAPC cluster offer Narcan training and Narcan kits.

Drug Free Greater Lowell Website

- www.DrugFreeGreaterLowell.org is live. The MOAPC grant funded informational business cards and other outreach materials to promote the website.

Unwanted Medication and Sharps Disposal

- The Lowell Health Department is hosting its first Unwanted Medication and Sharps Disposal day on March 10th from 2-6pm at 341 Pine Street, Lowell, MA.

Other

- Began discussion with MOAPC Coalition and grant funder to hire a contractor to analyze data, wrap up the MOAPC grant, and assess the current status of the MOAPC coalition via something similar to a SWAT analysis. More information to follow.

Partnerships for Success (PFS)

*** Lainnie Emond will act as interim coordinator of the PFS grant until the position is filled. ***

Strategy One (social media and education dissemination to high school-aged youth re: sharing prescription medications):

PFS Social Media Campaign:

- Social media campaign has been placed on hold until a new PFS Coordinator is hired.

Strategy Two (social media and education dissemination to parents/guardians and high school-aged youth re: proper disposal and storage):

“Help Keep Our Kids Safe” Campaign

-Community Health Coordinator, Kate Elkins, has completed a two-sided handout giving tips on the proper storage of prescription medication as well as identifying medication disposal sites in Lowell. Kate worked with a contracted graphic designer to create the handout format, and worked with Lainnie to create the handout content. This handout will be distributed to the general public with a specific focus on parents/caregivers of local youth. This handout has been sent to Lowell PFS’s assigned BSAS Grant Contract Manager and Technical Assistance Liaison for final approval.

Monthly Meeting:

The January coalition meeting was postponed until February 26th from 1-2pm at the Lowell Health Department.

Outreach Health Educator Position:

A candidate recommendation has been made to Human Resources.

Lowell Community Opioid Outreach Program (CO-OP)
Maricia Verma, Lowell CO-OP Supervisor

Lowell CO-OP Data 2019

--	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Total Encounters	78	76	32	47	88	58	41	48	74	33	41	51	667
Unique Encounters	--	37	28	29	52	34	28	36	53	16	34	31	378
Initial Interaction	--	9	6	9	17	3	7	13	12	2	15	7	100
OD Follow-Up	2	8	9	11	17	3	6	9	29	4	10	8	116
Section 35	2	1	0	1	5	1	1	2	2	0	5	0	20
Clinical Clients	7	7	5	4	3	2	2	2	2	2	2	2	40
Disseminate Narcan	0	0	3	6	13	4	20	5	25	5	37	23	141
SUD Treatment	11	15	14	12	14	14	18	14	22	11	8	5	158
Medical Treatment	0	1	0	5	3	4	4	5	4	1	1	5	33
Other Services	7	1	2	8	4	8	3	2	11	1	0	0	47
Misc. Outreach	--	--	--	--	--	156	223	464	71	72	132	463	1581

Outreach and Educational Events

Date	Event Type	Location	Topic	Attendance
12-9-2019	Presentation	UMass Lowell; Criminal Justice Class	CO-OP Services	20

Relationship Building

Date	Organization	Relationship Building
01-09-2020	Community Healthcare Alliance	CO-OP Supervisor and team , to meet and discuss collaboration and services.
01-21-2020	Place of Promise	CO-OP Supervisor, and team, to meet and discuss collaboration and services.

Additional

- First round interviews for the Clinical Recovery Specialist position were held the first week of January and second round interviews were held the third week of January. Candidate recommendation has been made.
- Lowell CO-OP brochure is being finalized. Once finalized, will be printed and distributed.

Syringe Collection Program
Andres Gonzalez, Syringe Collection Program Coordinator

City Department and Community Partner Engagement:

- Lowell Public Library
- Lowell Career Academy
- Lowell City Council
- Trinity EMS
- Lowell House Inc.
- Lowell Housing Authority
- Healthy Streets
- Hunger Homeless Commission
- MVRTA
- Lowell Community Health Center
- Office of the City Manager
- Lowell CO-OP
- Department of Planning & Development
- Lowell Street Department
- Lowell Police Department
- Lowell Parks Department

Community Events Attended:

- 12/13 Greater Lowell Opioid Task Force
- 12/17 Merrimack Valley Regional Transit Authority (MVRTA)
- 12/18 Lowell Housing Authority
- 12/19 South Common Village Tenant Association – (Sharps Education & Outreach)
- 12/20 Lowell SSP Stakeholders Meeting
- 1/7 Lowell Career Academy
- 1/10 Greater Lowell Opioid Task Force
- 1/22 Homeless Providers Coordination Meeting

Areas Proactively Swept for Discarded Syringes:

- Hunts Falls Bridge
- South Common Park
- Concord River
- George Street
- North Common Park
- Point Park
- Favor Street
- Thorndike Overpass
- Bridge Street Park
- Lowell Justice Center
- Eastern Canal Park
- River Bike Path
- Rogers Street Bridge
- La Lachuer Park
- Lincoln Street

Syringe Collection Activity 2019 and 2020

Total Number Of...	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 1 st -22 nd	Total
Discarded syringe pick-up requests*	8	6	8	21	22	35	38	22	8	12	180
Incoming calls for syringe pick-up requests**	6	22	21	17	14	14	14	11	7	8	134
Syringes picked-up while responding to all discarded syringe pick-up requests	49	240	334	265	157	337	322	113	22	290	2,129
Syringes picked up during Community Clean-up Events	0	11	75	49	16	131	161	0	0	0	433
Syringes proactively picked-up while in the community	493	967	488	1231	895	1040	845	896	635	838	8,328
Hours proactively picking-up discarded syringes in the community	9	20	25	29	41	49	35	44	27	33	294

*Discarded syringe pick-up request from City Employees (ie. police, fire) and Trinity EMS.

**Discarded syringe pick-up request from Lowell residents.

Community Outreach Educator
Linda Bellantoni

Linda's role focuses on enhancing the outreach efforts of the Substance Abuse and Prevention Division.

City Department and Community Partner Engagement:

- Linda built relationships with the following community partners:
 - THRIVE
 - Megan's House
 - Lowell Senior Center
 - Pollard Memorial Library
 - Veterans Center
 - Lowell CO-OP

Community Events Attended:

- 1/7 Greater Lowell Health Alliance –Substance Use Prevention. Saints Campus-Lowell General Hospital
- 1/10 District Attorney's Opioid Task Force
- 1/15 "Morning with Millie" Mayors Reception Room-City Hall
- 1/22 Lowell Community Health Center- Teen Block Open House.
- 1/23 Center for Family Therapies

Outreach Education:

- 1/29 Middlesex Community College - Wellness Wednesday
 - Topics of focus will include signs of an opioid overdose and Syringe Collection Program
- 2/17 Lowell Kids Week (*kids and parents*)
 - Topics of focus will include safe syringe disposal/storage and medication disposal