HOT TOPICS IN PUBLIC HEALTH

MHOA

October 14, 2020

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Massachusetts Department of Public Health

COVID-19 Cluster Analysis

Exposure Setting Types

Exposure Setting	Includes
24/7 Congregate Settings	Group homes, congregate housing, disabled community housing, halfway houses, sober homes, residential treatment centers, lodging and rooming houses
Child Care	
Colleges and Universities	
Corrections	Jails, prisons, houses of corrections, correctional treatment centers
Hospitals	All hospitals, including inpatient psychiatric, inpatient addiction treatment, chronic disease and rehabilitation
Industrial Settings	Industrial settings including construction and non-food manufacturers, warehouses and distribution centers
K-12 Schools	Boarding schools, public schools, private schools, special education schools
Long Term Care Facilities	
Organized Athletics and Camps	Sports teams, tournaments, and clubs; children's camps
Other	
Other Food Establishments	Food distributors, manufacturers, warehouses, processors, farms, and food pantries
Other Healthcare	Ambulatory mental health services, community health centers, home health, dental, ambulatory care settings, hospice, addiction treatment (non-residential or outpatient), emergency medical services
Other Workplaces	Offices, work-related events, first responders
Places of Worship	
Recreation/Cultural	Gyms, fitness centers, swimming pools, beaches, movie theaters, golfing, boating, casinos
Restaurants and Food Courts	
Retail and Services	Grocery stores, hair salons, barbers, other retail stores
Senior Living	Assisted living facilities, retirement communities, senior housing, rest homes
Shelters	
Social Gatherings	Parties, group gatherings, weddings, funerals
Travel and Lodging	Domestic or international travel, hotels, cruise ships

DATA DETAILS

National Healthcare Safety Network Data (Long Term Care Facilities, beginning the week of 5/31/2020)
- A confirmed case is defined as a staff or resident with a new positive COVID-19 test result.
- Confirmed cases are reported by each facility in aggregate, at least once a week, and are assigned to the week in which the data are submitted.
- A cluster is defined as two or more confirmed cases in a facility that has not reported a confirmed case in the prior 4 weeks.
- A cluster is deemed closed when a facility has gone 4 weeks without reporting a confirmed case among staff or residents.
- Cluster date (which determines the week in which it is presented in the graph) is determined by the week in which the cumulative number of confirmed cases for a facility is greater than 2.

MAVEN Data (All other reported data)
- The data presented include only clusters that meet the following definition: two or more confirmed Massachusetts cases with a common exposure.
- The date assigned to each confirmed case's event is that of the first positive lab date.
- The date assigned to each contact is that of the date they were linked to the cluster.
- A cluster is deemed closed once two incubation periods (28 days) have passed from the last confirmed case.
- Cluster date (which determines the week in which it is presented in the graph) is determined by the date of the positive lab of the first associated case.

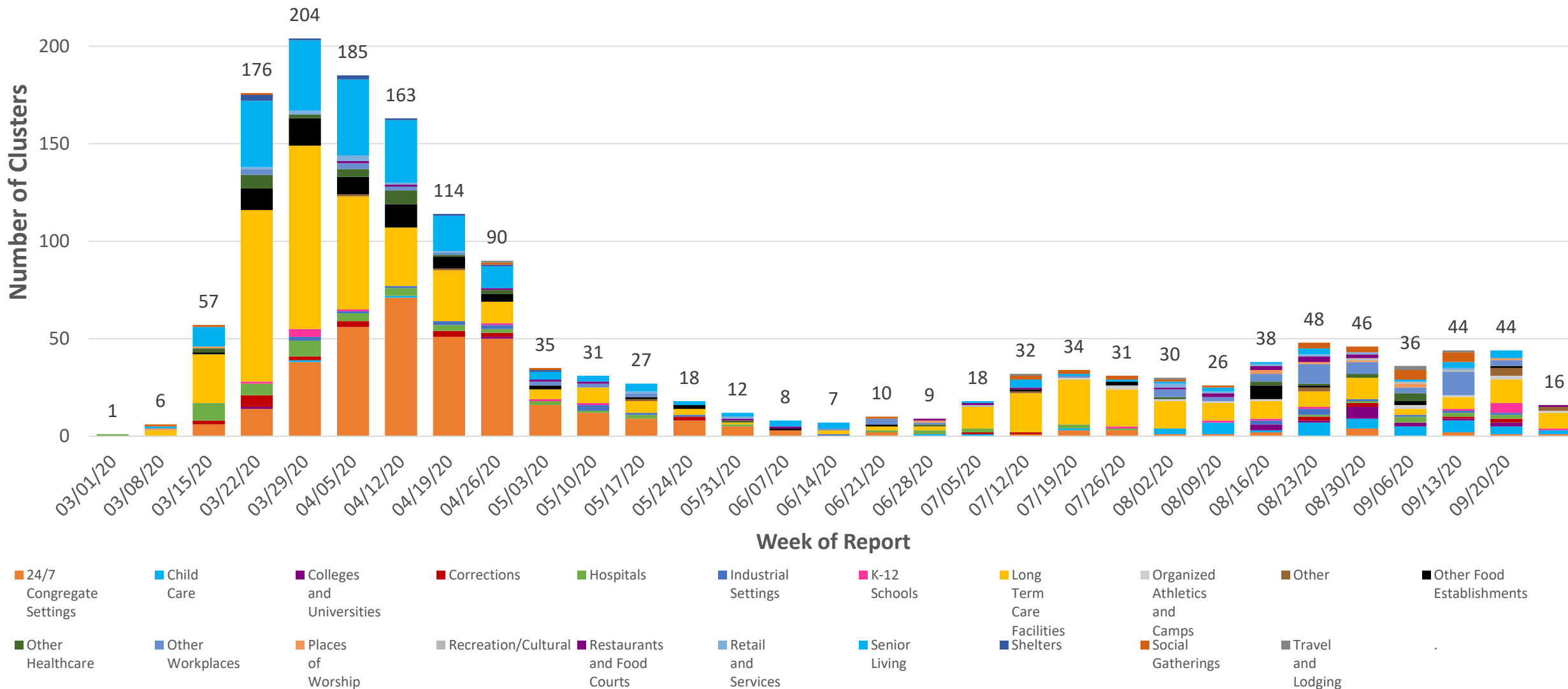# COVID Clusters Reported to MDPH by Exposure Setting Type
All, 3/1/2020-10/3/2020

Exposure Setting	Total Clusters	Total Confirmed Cases	Total Contacts
24/7 Congregate Settings	442	2148	880
Child Care	128	209	629
Colleges and Universities	21	201	64
Corrections	22	1012	122
Hospitals	68	1505	779
Household	14,829	36,893	--
Industrial Settings	27	146	63
K-12 Schools	34	163	142
Long Term Care Facilities	551	27,833	---
Organized Athletics and Camps	19	54	263
Other	19	118	149
Other Food Establishments	76	997	155
Other Healthcare	54	207	77
Other Workplaces	83	344	288
Places of Worship	11	66	31
Recreation/Cultural	5	38	37
Restaurants and Food Courts	40	89	110
Retail and Services	29	130	88
Senior Living	229	3243	5543
Shelters	12	537	41
Social Gatherings	37	189	210
Travel and Lodging	7	29	40
TOTAL	16,743	76,151	9,711

Massachusetts Department of Public Health, Bureau of Infectious Disease and Laboratory Sciences. Long Term Care Facility Data from the National Healthcare Safety Network beginning 5/31/2020. All other data from MAVEN and are subject to change. Only clusters consisting of two or more confirmed Massachusetts cases with a common exposure have been included.
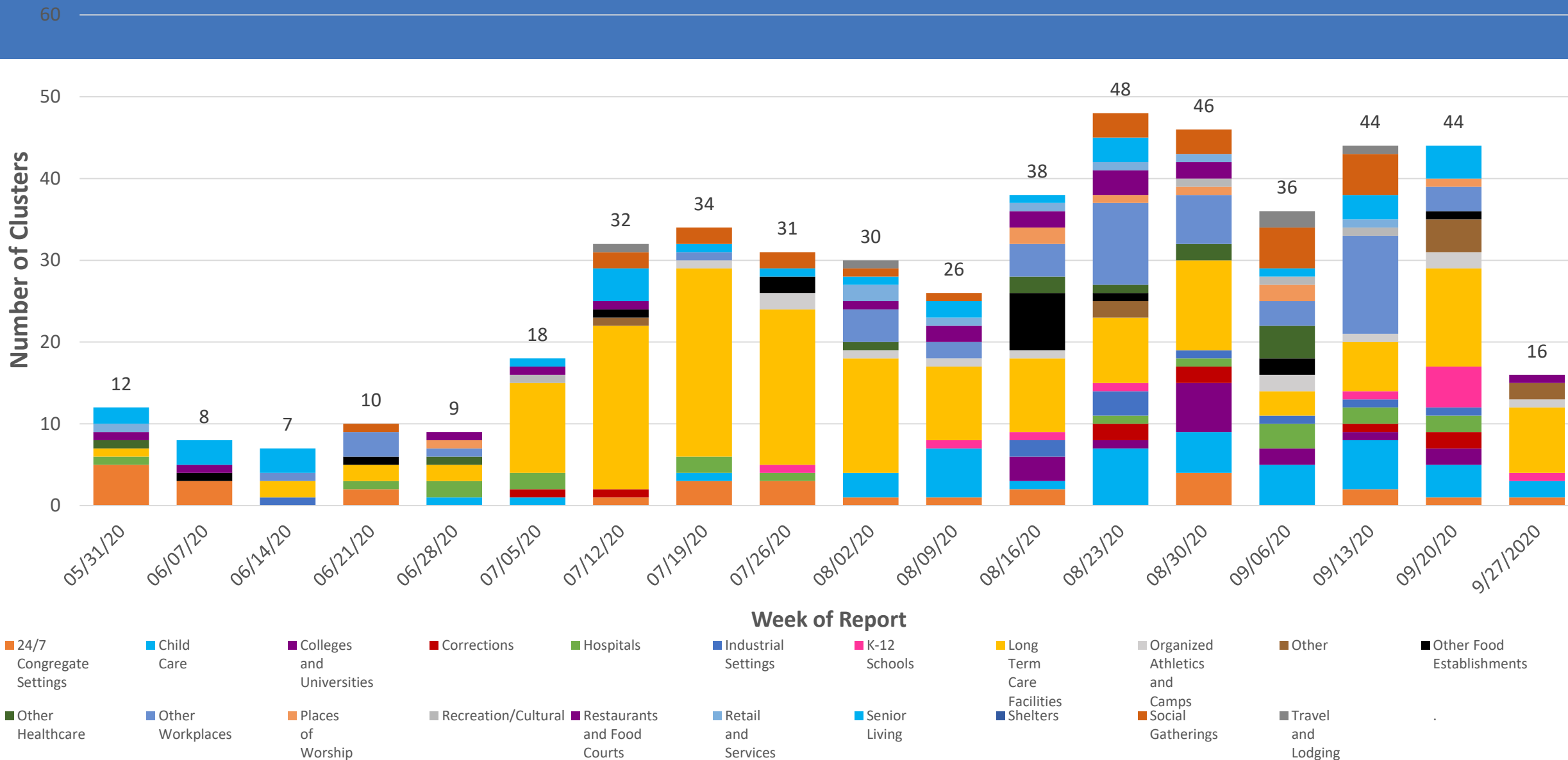
COVID Clusters Reported to MDPH by Week and Exposure Setting Type, 3/1/2020-10/3/2020

Massachusetts Department of Public Health, Bureau of Infectious Disease and Laboratory Sciences. Long Term Care Facility Data from the National Healthcare Safety Network beginning 5/31/2020. All other data from MAVEN and are subject to change. Only clusters consisting of two or more confirmed Massachusetts cases with a common exposure have been included.

COVID Clusters Reported to MDPH by Week and Exposure Setting Type, 3/1/2020-10/3/2020

Massachusetts Department of Public Health, Bureau of Infectious Disease and Laboratory Sciences. Long Term Care Facility Data from the National Healthcare Safety Network beginning 5/31/2020. All other data from MAVEN and are subject to change. Only clusters consisting of two or more confirmed Massachusetts cases with a common exposure have been included.

COVID Clusters Reported to MDPH by Exposure Setting Type
Four week period: 9/6/2020-10/3/2020

Exposure Setting	Ongoing			New			Total		
	Clusters	Confirmed Cases	Contacts	Clusters	Confirmed Cases	Contacts	Clusters	Confirmed Cases	Contacts
24/7 Congregate Settings	2	12	20	2	8	12	4	20	32
Child Care	0	.	25	11	19	170	11	19	195
Colleges and Universities	0	.	5	3	115	28	3	115	33
Corrections	1	2	2	3	113	2	4	115	4
Hospitals	0	.	2	6	56	21	6	56	23
Household	868	340		1,555	3,942		2,423	4,282	
Industrial Settings	2	7	16	2	4	1	4	11	17
K-12 Schools	0	.	.	6	18	45	6	18	45
Long Term Care Facilities	82	181	---	29	154	---	111	335	---
Organized Athletics & Camps	0	.	.	5	21	55	5	21	55
Other	0	.	.	6	22	14	6	22	14
Other Food Establishments	1	2	39	1	4	.	2	6	39
Other Healthcare	0	.	4	0	.	.	0	.	4
Other Workplaces	0	.	5	5	16	26	5	16	31
Places of Worship	0	.	7	1	2	20	1	2	27
Recreation/Cultural	1	1	.	0	.	4	1	1	4
Restaurants & Food Courts	0	.	7	1	3	.	1	3	7
Retail and Services	0	.	1	1	1	1	1	1	2
Senior Living	1	1	8	6	15	6	7	16	14
Social Gatherings	0	.	21	4	8	77	4	8	98
Travel and Lodging	0	.	.	1	2	34	1	2	34
TOTAL	958	546	162	1,648	4,523	516	2,606	5,069	678

New Clusters: Clusters with the first case identified during the four week period above.

Ongoing Clusters: Clusters with the first case identified prior to the four week period above that has not met criteria to be closed. Cases included in ongoing clusters are those whose first positive lab result is within the four-week time period.
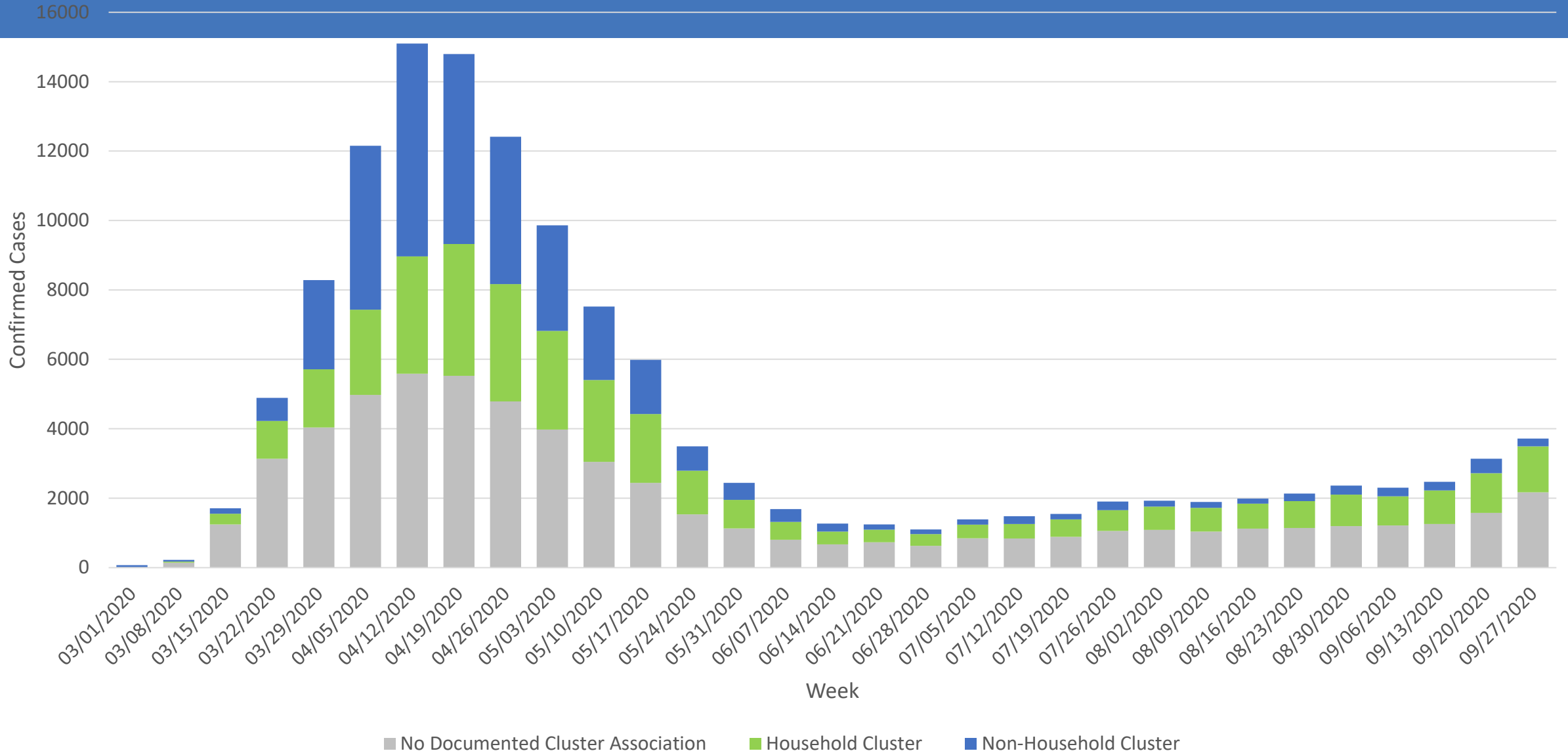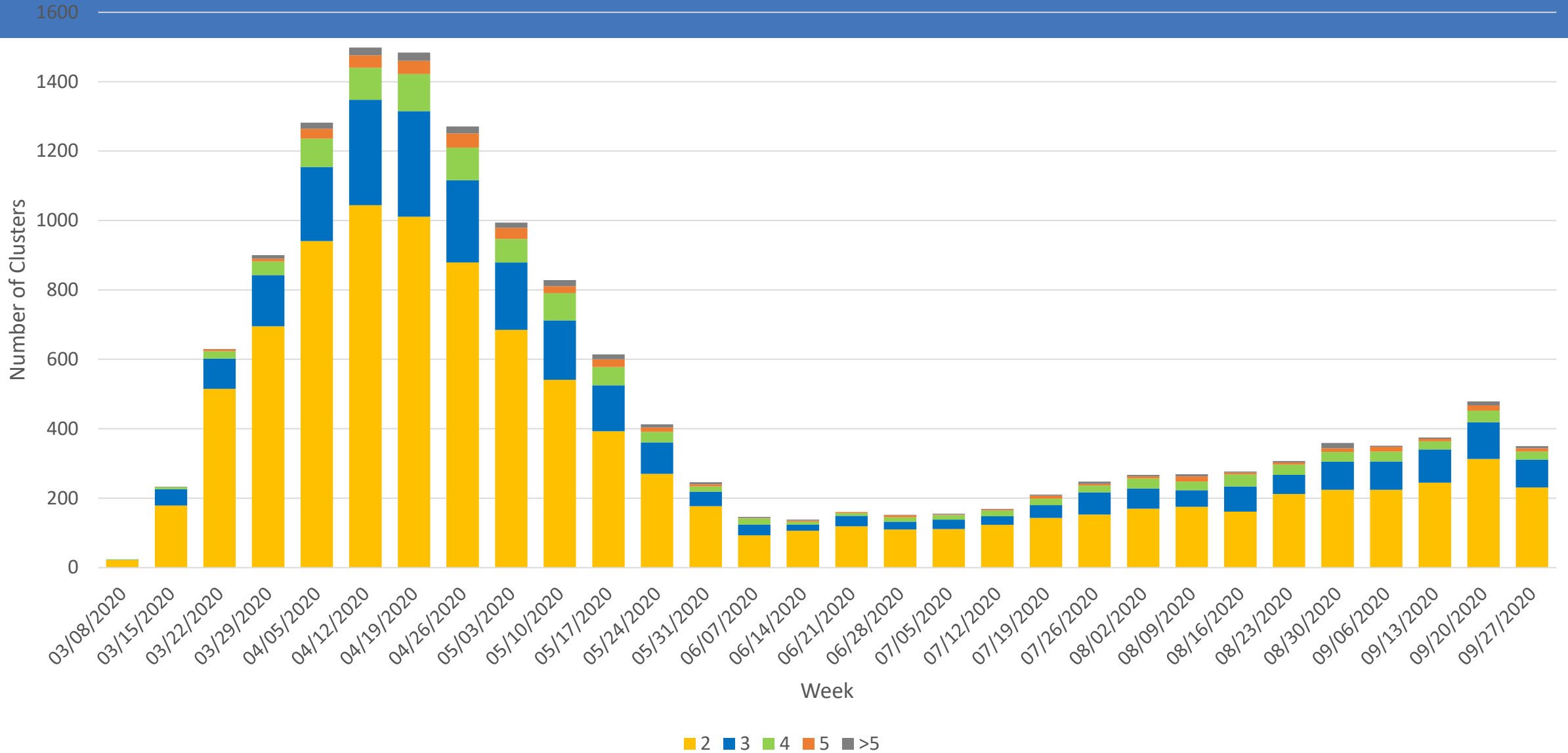
Household Data

Household Data Details

- A household "cluster" is defined as two or more confirmed Massachusetts cases who reside at the same address with COVID-19 infection within 14 days of each other.

- Other rules applied are the same as other cluster types:
  - The date assigned to each confirmed case's event is that of the first positive lab date.
  - A cluster is deemed closed once two incubation periods (28 days) have passed from the last confirmed case.
  - Cluster date (which determines the week in which it is presented in the graph) is determined by the date of the positive lab of the first associated case.

Confirmed COVID Cases Reported to MDPH by Cluster Association, 3/1/2020-10/3/2020

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

Number of Confirmed Cases per Household Cluster, 3/1/2020-9/26/2020

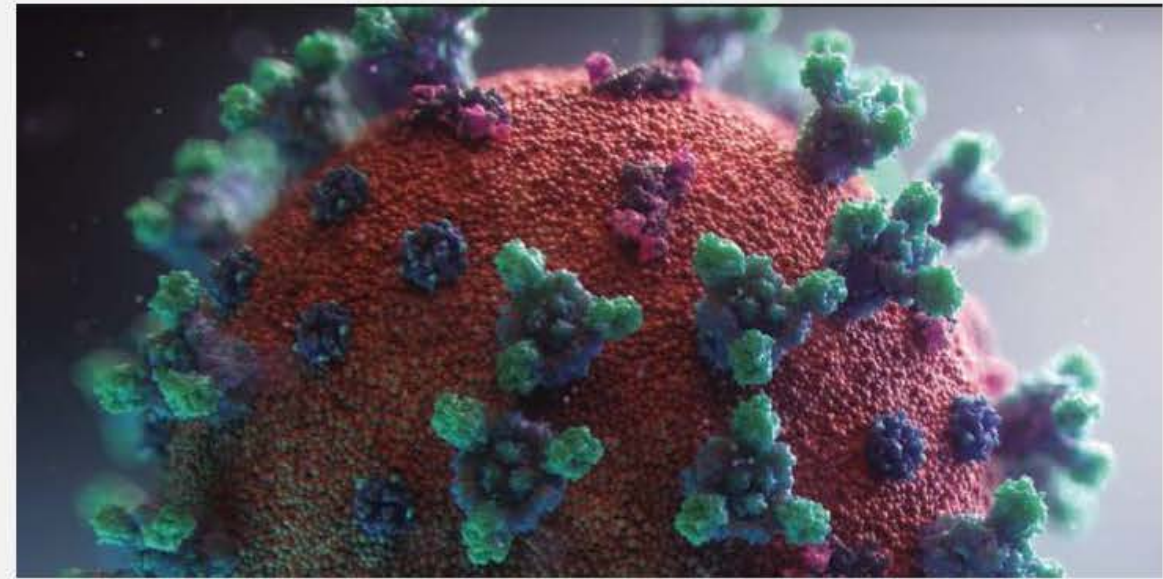Massachusetts Department of Public Health, Bureau of Infectious Disease and Laboratory Sciences.

Massachusetts Department of Public Health

R/Y/G Calculation Support

LBOH / MAVEN Webinar

October 13, 2020

Richard Herman, MD, FACEP
rherman@cobma.us

BROCKTON
CITY OF CHAMPIONS

Average daily incidence rate = (Cases on Day1/population + Cases on Day 2/population….+Cases on Day14/population)/14 x 100,000.

The 14 days over which the cases are drawn is indicated in the footnotes on the dashboard; the most recent 14 day period was 8/16/2020 - 8/29/2020.

Massachusetts Department of Public Health COVID-19 Dashboard - Wednesday, September 2, 2020
Average Daily Incidence Rate (per 100,000, PCR only) for COVID-19 in MA by City/Town Over Last Two Weeks
8/16/2020 - 8/29/2020

Average Daily Incidence Rate per 100,000 over last two weeks
(State Daily Rate 4.20)

Gray (<5 reported cases)
Green (<4 cases per 100k)
Yellow (4 - 8 cases per 100k)
Red (>8 cases per 100k)

N
1 inch = 20 miles

* Unknown Official City/Town (N = 74)
Cases are excluded when City/Town is unknown.

Bureau of Infectious Disease and Laboratory Sciences

* Data as of 02SEPT2020 and are subject to change.

Approximating the Status Map

- Daily incidence rate calculated for 2 week reporting period (ending on previous Saturday)
  - (# new cases/jurisdiction population estimate)*100,000
  - Averaged over 14 day timeframe (including zeroes)
  - Rounded to the nearest tenth decimal point

- Multiple sources of variability:

  - *Timing*
    - Data pulled first thing Wednesday morning
    - Case numbers constantly changing due to revoking, deduplication, reassignment of jurisdiction
  - *Date used to identify cases*
    - Map calculations based on collection date of first positive PCR specimen
    - May not equal event date - most reports extract based on event date
    - Confirmed and Probable report now uses first positive specimen date
  - *Population estimates*
    - DPH calculates rates per 100,000 population using denominators estimated by the University of Massachusetts Donahue Institute using a modified Hamilton-Perry model (Strate S, et al. Small Area Population Estimates for 2011 through 2020, report,Oct 2016.)

Daily average per 100,000 population of confirmed cases* for the 14-day period leading up to the previous Saturday ...

Sun	Mon	Tue	Wed	Thu	Fri	Sat
27 September	28	29	30	1 October	2	3
4	5	6	7	8	9	10
11	12	13	14 BIG DAY! 6PM!	15	16	17

*specimen date of first positive test result

What you need to know............

- **Total number of confirmed cases over 14-day period**
- Your town's population

Maven Surveillance and Case Management System

Maven Reporting

Maven Reporting

Category: Custom Reports ⌄

Select Report: ⌄

Run Report

COVID-19 - line list of addresses with individual(s) under isolation for emergency responders CONFIDENTIAL
COVID-19 Brockton Basic Line List Adhoc
COVID-19 LBOH CTC Data Report
COVID-19 LBOH Confirmed and Probable Case line list Report
COVID-19 LBOH Contact line list Report
COVID-19 LBOH Requested Assistance Line List Report
Cluster/Outbreak Linelist
DGP - Event Information Extract by Disease (Excel,CSV)
DGP - LBOH Active Caseload
LBOH Basic Line List
LBOH Cluster Linelist Report
LBOH Count - Events Per Disease and Classification in Jurisdiction
LBOH Event Information Extract by Disease (Excel, CSV)
LBOH Events by Time Period
LBOH Events by Week by Event Date

BROCKTON
CITY OF CHAMPIONS

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What you need to know.............

- **Total number of confirmed cases over 14-day period**
- Your town's population

	A	B	C	D	E	F
				Specimen Date of First Positive Test Result		
1	Event ID	Create Date	Event date	Specimen Date of First Positive Test Result	Disease classificati	Official City
2					Confirmed	BROCKTON
3					Confirmed	BROCKTON
4					Confirmed	BROCKTON
5					Confirmed	BROCKTON
6					Confirmed	BROCKTON
7					Confirmed	BROCKTON
8					Confirmed	BROCKTON
9					Confirmed	BROCKTON
10					Confirmed	BROCKTON
11					Confirmed	BROCKTON
12					Confirmed	BROCKTON
13					Confirmed	BROCKTON
14					Confirmed	BROCKTON
15					Confirmed	BROCKTON
16					Confirmed	BROCKTON
17					Confirmed	BROCKTON
18					Confirmed	BROCKTON
19					Confirmed	BROCKTON

Total = 122 cases
Daily = 8.71/day

BROCKTON
CITY OF CHAMPIONS

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The math:

$$\frac{\text{Daily average}}{\text{Population}} = \frac{\text{Big number}}{100{,}000}$$

If you know any three values, you can solve for the fourth.

BROCKTON
CITY OF CHAMPIONS

	A	B	C	D	E	F
1			**Minimum Number of New Cases to Reach Each Threshold**			
2	**City/Town**	**2018 Population Estimate**	**Grey Zone**	**Green Zone**	**Yellow Zone**	**Red Zone**
24	Barre	5557.77	<5		5	6
25	Becket	1800.45	<5			5
26	Bedford	14896.39	<5	5	8	17
27	Belchertown	15922.75	<5	5	9	18
28	Bellingham	17876.35	<5	5	10	20
29	Belmont	27306.18	<5	5	15	30
30	Berkley	6780.17	<5		5	8
31	Berlin	3193.25	<5			5
32	Bernardston	2090.99	<5			5
33	Beverly	41166.63	<5	5	23	46
34	Billerica	43583.06	<5	5	24	49
35	Blackstone	9044.38	<5		5	10
36	Blandford	1214.72	<5			5
37	Bolton	5052.58	<5		5	6
38	Boston	694968.47	<5	5	384	773
39	Bourne	20919.99	<5	5	12	23
40	Boxborough	5107.59	<5		5	6
41	Boxford	7717.21	<5		5	9
42	Boylston	4488.87	<5			5
43	Braintree	39359.73	<5	5	22	44
44	Brewster	9912.34	<5		5	11
45	Bridgewater	28446.98	<5	5	16	32
46	Brimfield	3725.42	<5			5
47	Brockton	98248.24	<5	5	54	109
48	Brookfield	3661.71	<5			5
49	Brookline	64384.41	<5	5	36	72
50	Buckland	1860.46	<5		1	2

http://www.maventrainingsite.com/maven-help/toc.html

MAVEN Online Help

📁 COVID-19 Materials/Training

- ⊞ 📁 Case Follow-Up Tools
- ⊞ 📁 Community Tracing Collaborative (CTC)
- ⊞ 📁 Clusters/Outbreaks **NEW!**
- ⊞ 📁 Guidance Documents & Resources
- ⊞ 📁 Higher Education **NEW!**
- ⊞ 📁 MAVEN Tipsheets & General Instructions
- ⊞ 📁 Memos and Orders
- ⊞ 📁 Webinars & Trainings (status map information located here)

⊞ 📁 Memos and Orders

⊟ 📁 Webinars & Trainings

- October 13 - Status Map Presentation_Brockton_COVID-19 LBOH Webinar Presentation **NEW**
- October 13 - MAVEN CTC Update_Status Map Presentation_K12 Case Investigation Review_Testing Scenarios Presentation **NEW**
- October 13 -October 13 - MAVEN CTC Update_Status Map Presentation_K12 Case Investigation Review_Testing Scenarios Recording (1:18:37) **NEW**
- October 6 - Best Practices for K12 Case Investigations Presentation
- October 6 - Best Practices for K12 Case Investigations Recording (1:19:27)
- September 29 - Isolation and Quarantine _ Jurisdictional Review _ DayCare Review Presentation
- September 29 - Isolation and Quarantine _ Jurisdictional Review _ DayCare Review Recording (1:18:12)
- September 22 - Day Care Facility Overview and Guidance Presentation
- September 22 - Day Care Facility Overview and Guidance Recording(1:22:24)
- September 15 - Jurisdictional Related Guidance Presentation
- September 15 - Jurisdictional Related Guidance Recording(1:15:17)

Overview of Sexually Transmitted Disease Surveillance Data

Confirmed Chlamydia Cases, MA, 1990 to 2019
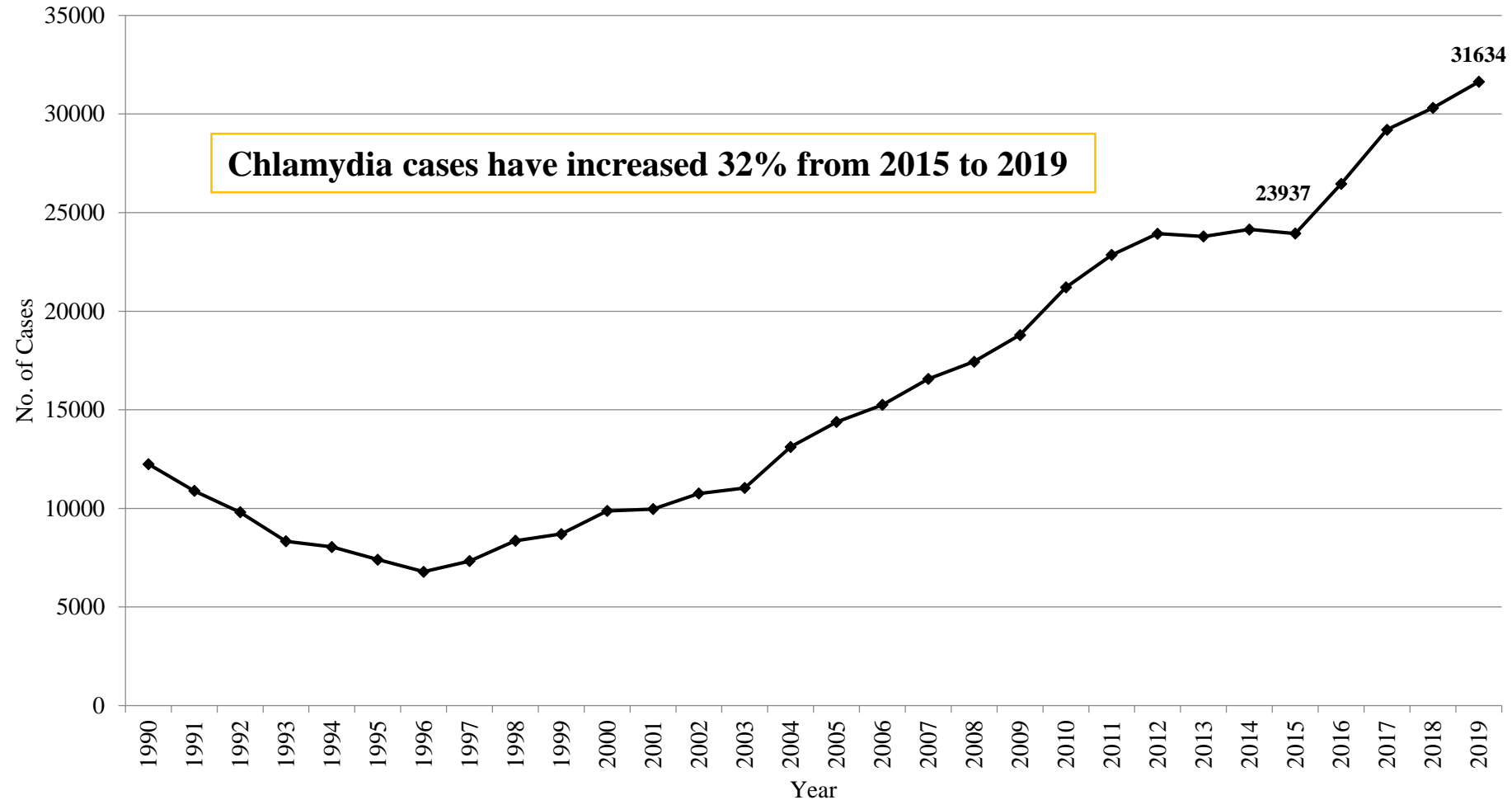
Chlamydia cases have increased 32% from 2015 to 2019

31634

23937

Data are current as of 9/9/2020 and are subject to change.
Data Source: Massachusetts Department of Public Health/Bureau of Infectious Disease and Laboratory Sciences/ Division STD Prevention
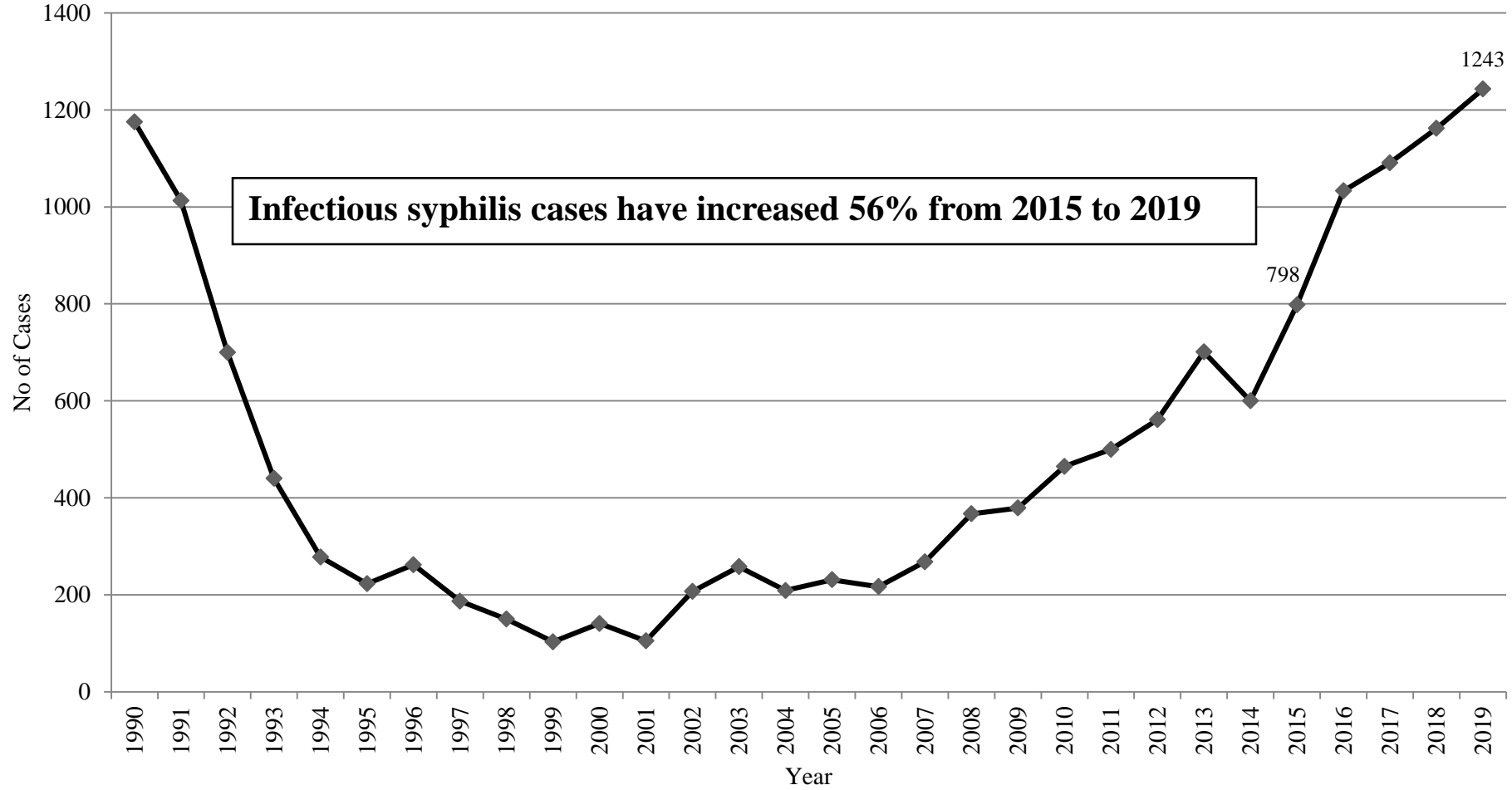
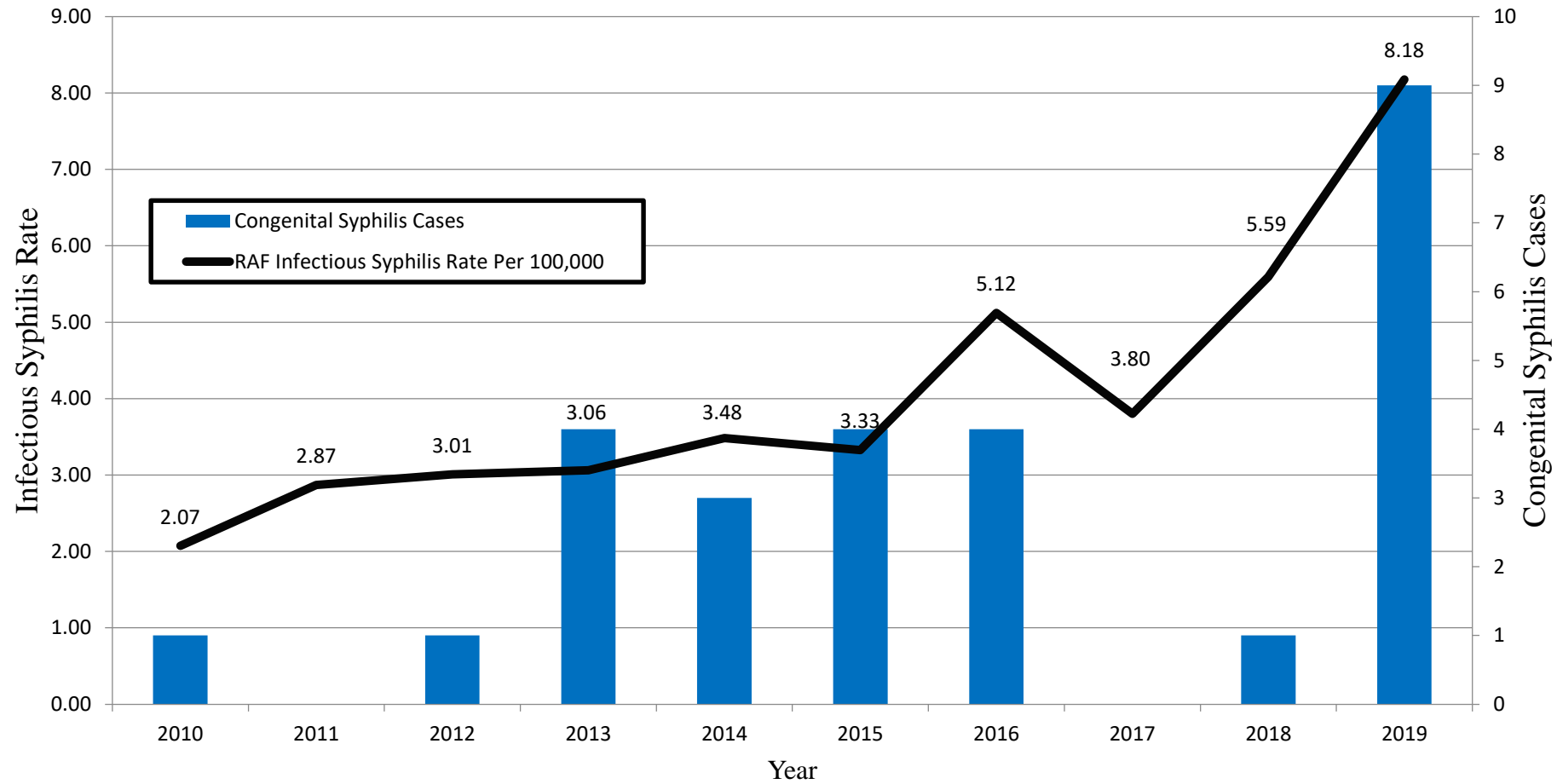Comparison of MMWR Weekly Case Counts
for Chlamydia, Massachusetts, 2019-2020
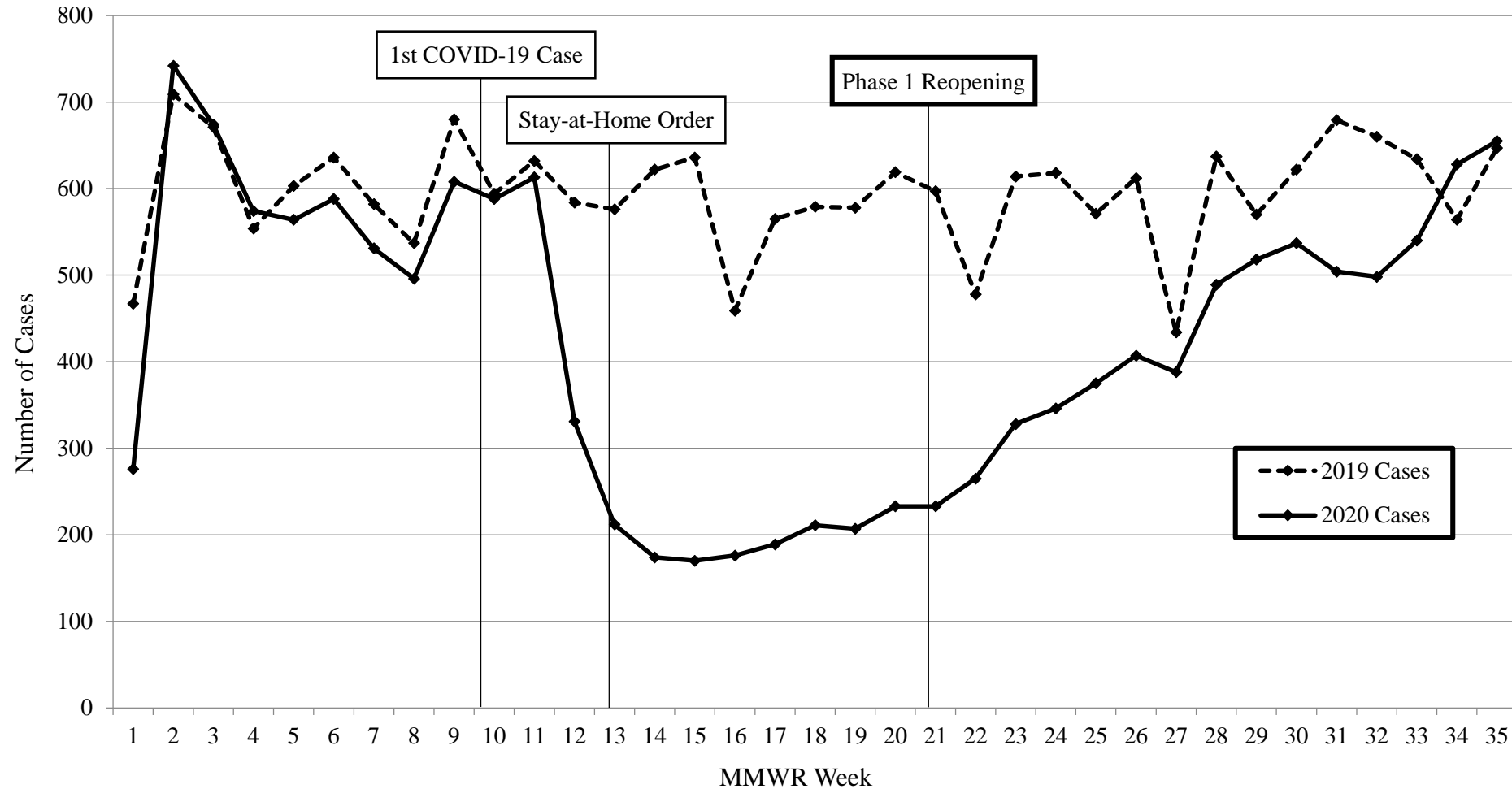
Data are current as of 09/23/2020 and are subject to change.
Data Source: Massachusetts Department of Public Health/Bureau of Infectious Disease and Laboratory Sciences/ Division STD Prevention

Confirmed Gonorrhea Cases, MA, 1990 to 2019

Gonorrhea cases have increased 99% from 2015 to 2019
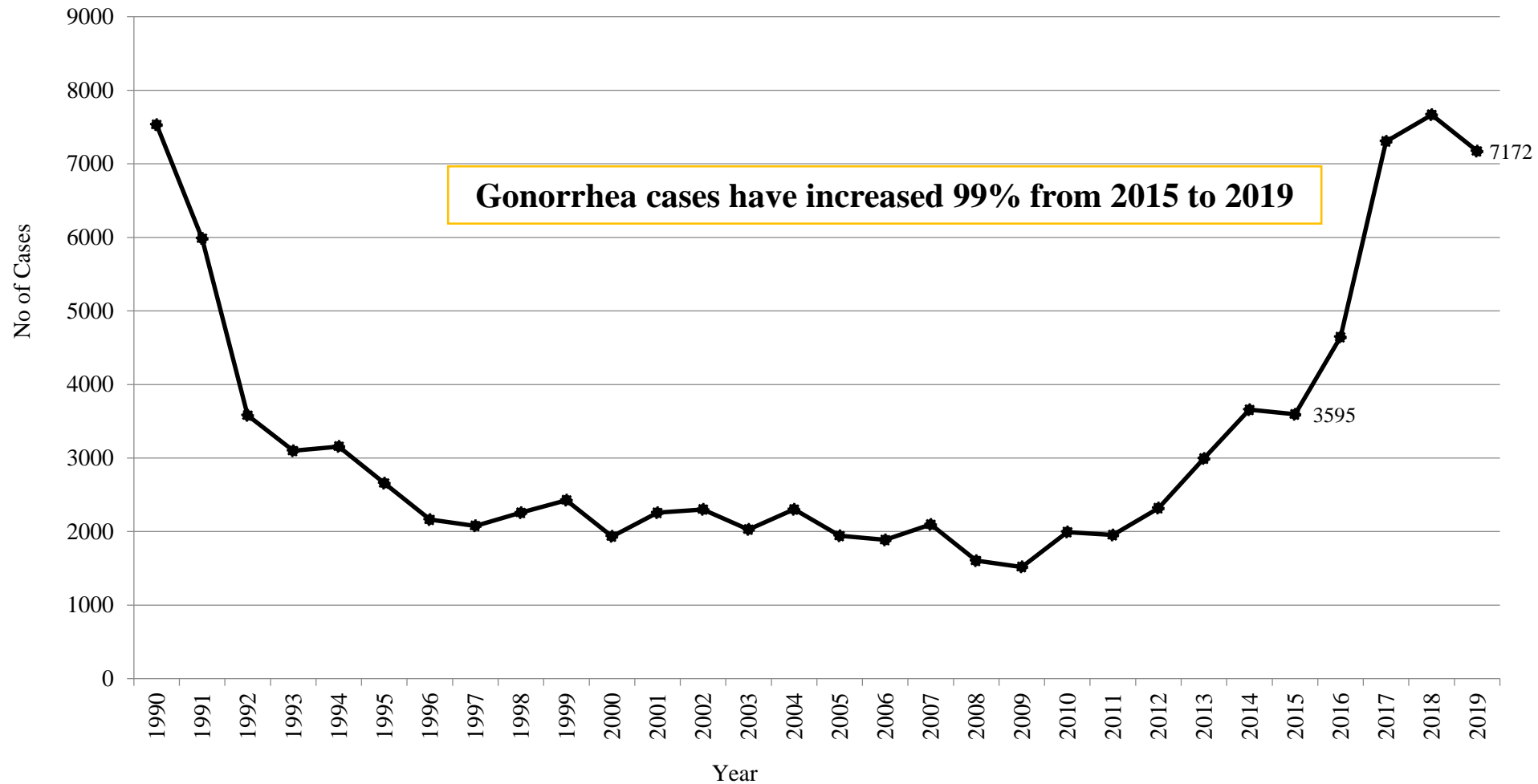
Data are current as of 09/11/2020 and are subject to change. This slide is for internal use only.
Data Source: Massachusetts Department of Public Health/Bureau of Infectious Disease and Laboratory Sciences/ Division STD Prevention

Comparison of MMWR Weekly Case Counts for Gonorrhea, Massachusetts, 2019-2020
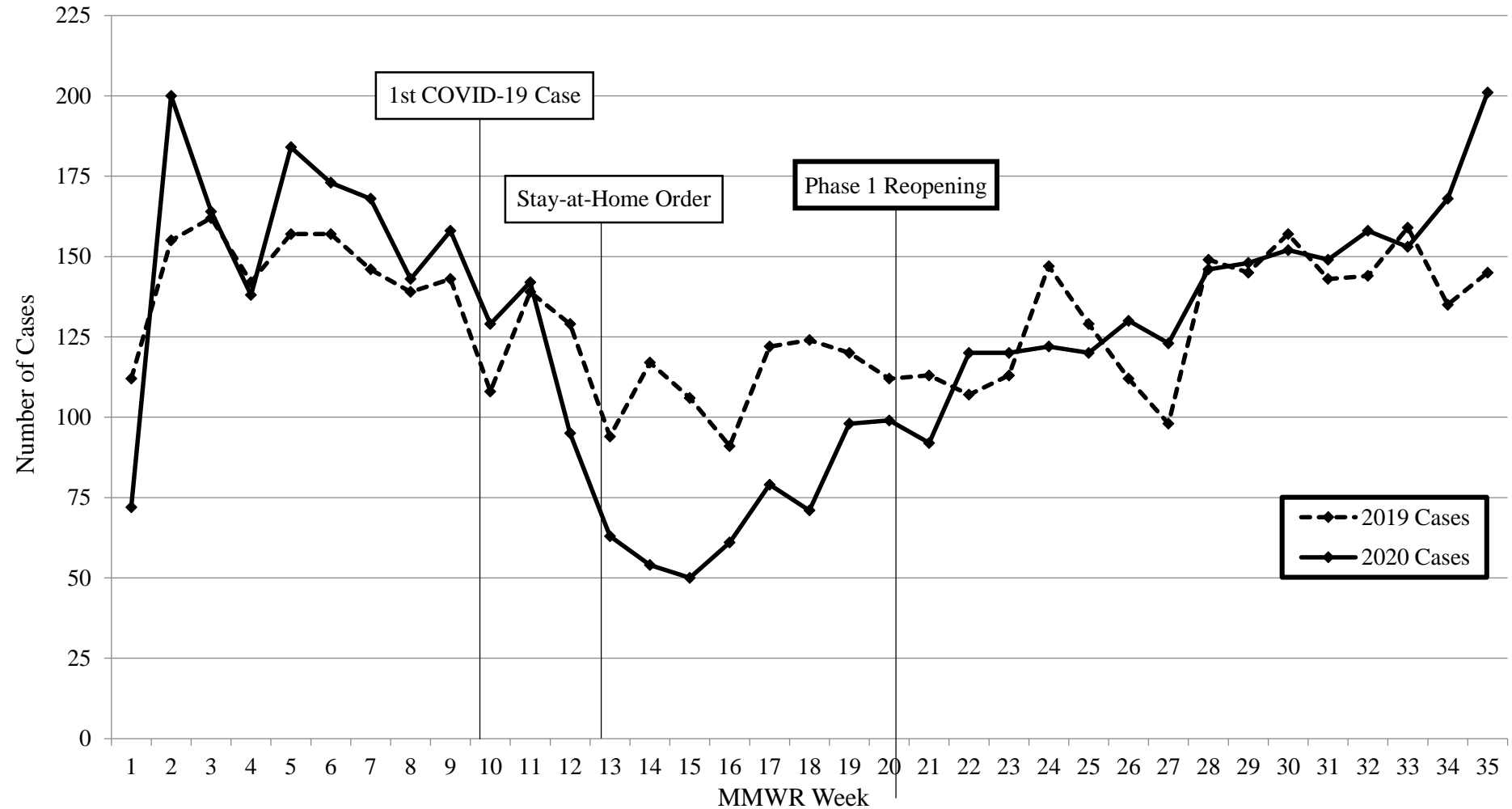
Data are current as of 09/23/2020 and are subject to change.
Data Source: Massachusetts Department of Public Health/Bureau of Infectious Disease and Laboratory Sciences/ Division STD Prevention

Confirmed & Probable Infectious Syphilis Cases* MA, 1990 to 2019

Infectious syphilis cases have increased 56% from 2015 to 2019

Data are current as of 9/9/2020 and are subject to change.
*Infectious syphilis is defined as primary, secondary and early latent stages of syphilis.
Data Source: Massachusetts Department of Public Health/Bureau of Infectious Disease and Laboratory Sciences/ Division STD Prevention

Comparison of MMWR Weekly Case Counts for Confirmed and Probable Infectious Syphilis*, Massachusetts, 2019-2020
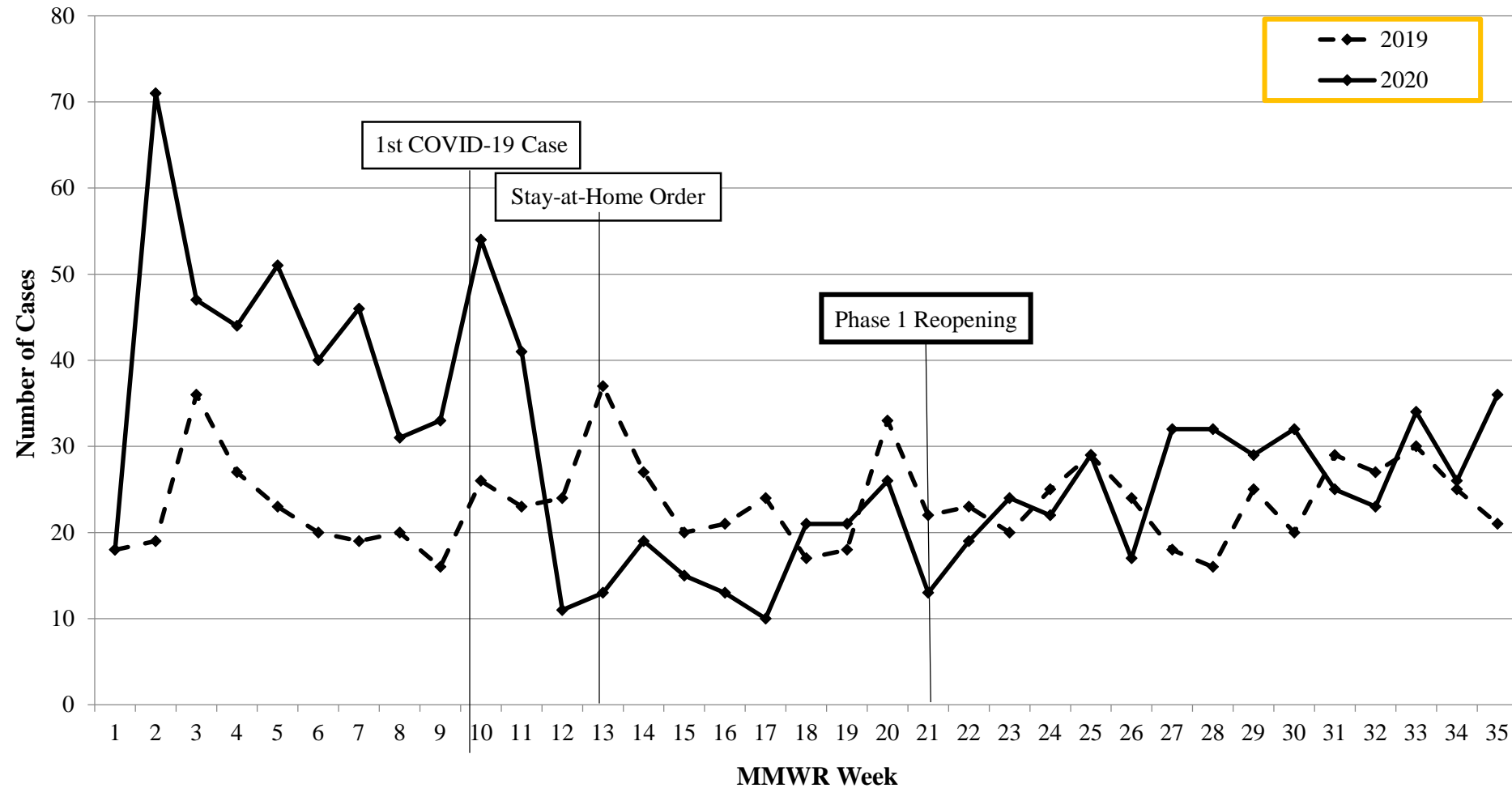
Data are current as of 10/3/2020 and are subject to change.
*Infectious syphilis is defined as primary, secondary and early latent stages of syphilis.
Data Source: Massachusetts Department of Public Health/Bureau of Infectious Disease and Laboratory Sciences/ Division STD Prevention

All Stages of Syphilis Among Pregnant Females, Massachusetts, 2010–2019
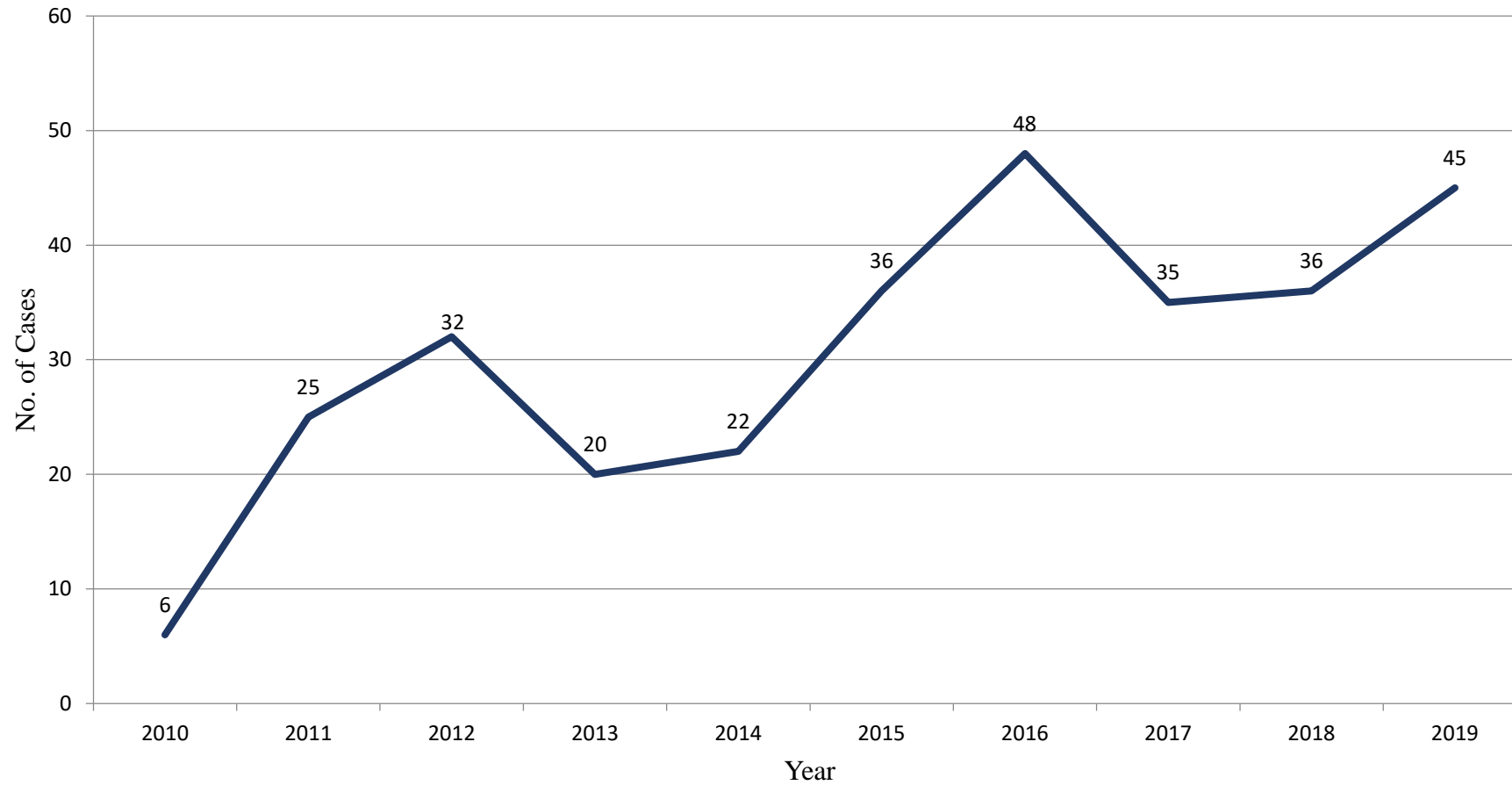
Data Source: Massachusetts Department of Public Health/Bureau of Infectious Disease and Laboratory Sciences/ Division STD Prevention. Data are current as of 9/9/2020 and are subject to change.

Congenital Syphilis Cases and Rate of Confirmed and Probable Infectious Syphilis Among Females of Child-bearing Age (15 to 44) Massachusetts, 2010-2019

Data Source: Massachusetts Department of Public Health/Bureau of Infectious Disease and Laboratory Sciences/ Division STD Prevention. Data are current as of 2/12/2020 and are subject to change.

- In 2019, reportable congenital cases increased from <5 cases in the prior years to 9 cases. These cases included:
  - 3 syphilitic stillbirths
  - 6 probable congenital cases
- 6 of 9 cases were born to mother's with latent syphilis infection (based on the surveillance case definition)
- 2 of 3 stillbirths were born to mothers with substance use disorder
- 7 of 9 mothers were known to be non-US born and 4 of those had recently emigrated (<6 months)
- All mothers had inadequate prenatal care including intermittent, late, or no prenatal care
  - inadequate time to complete treatment 30 days prior to birth
  - Maternal treatment initiated at least 30 days prior to birth significantly reduces adverse outcomes
- In June of 2020 MDPH issued a congenital syphilis clinical alert, recommending the addition of third trimester screening for syphilis

Tuberculosis

Reported TB Cases in MA 2019 & 2020
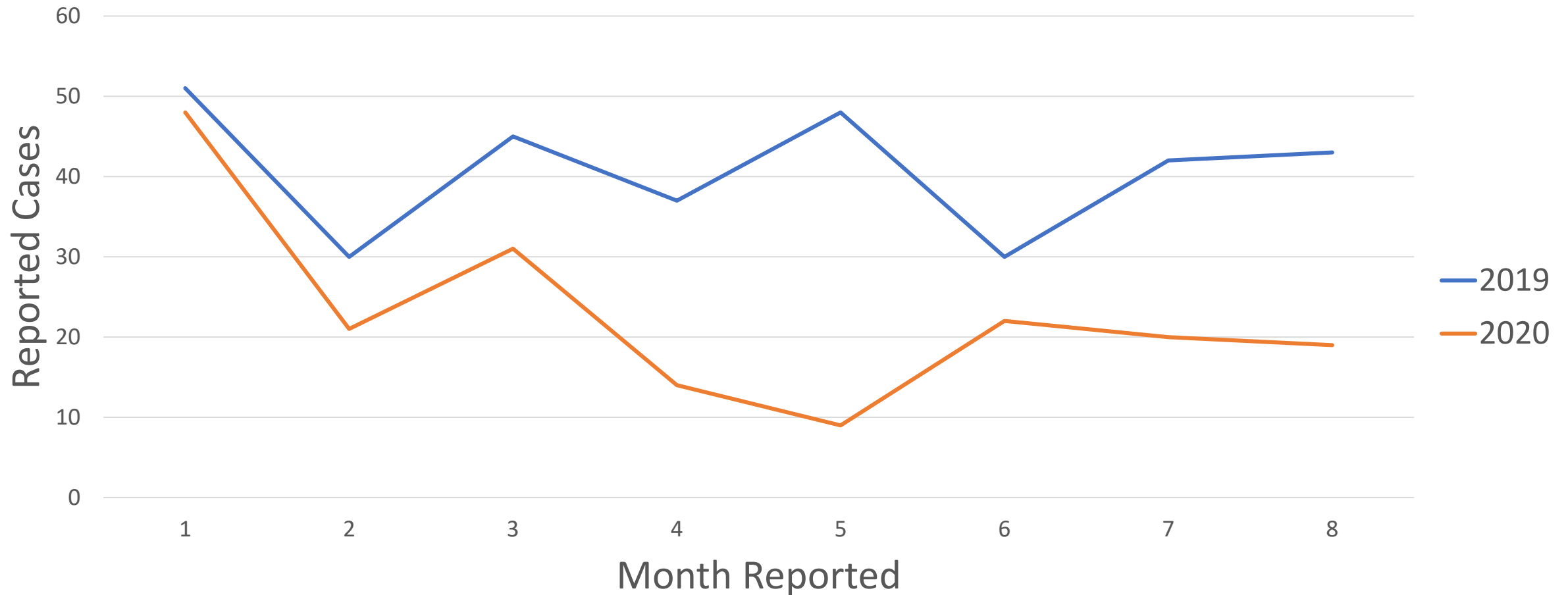
Data from MAVEN and current as of 9/17/2020

Tuberculosis

- FDA and CDC reported nitrosamine impurities in rifampin and rifapentine
  - Not a recall
  - Important drug for public health – particularly treatment of active TB
  - DPH posted announcement with recommendations on September 22 https://www.mass.gov/clinical-advisory/announcement-nitrosamine-impurities-detected-in-samples-of-rifampin-and

EEE

EEE Cases by Year: United States
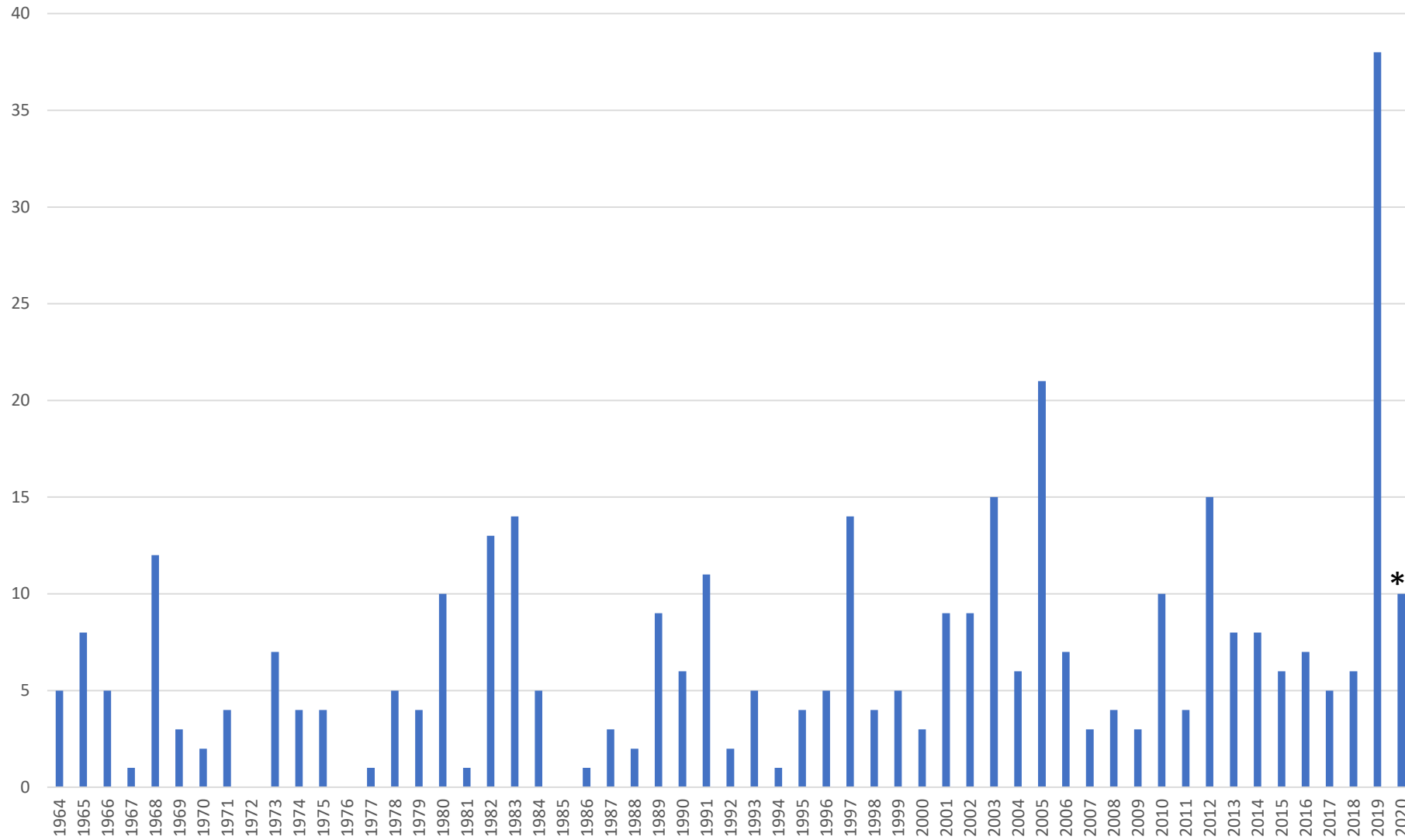
*Provisional data
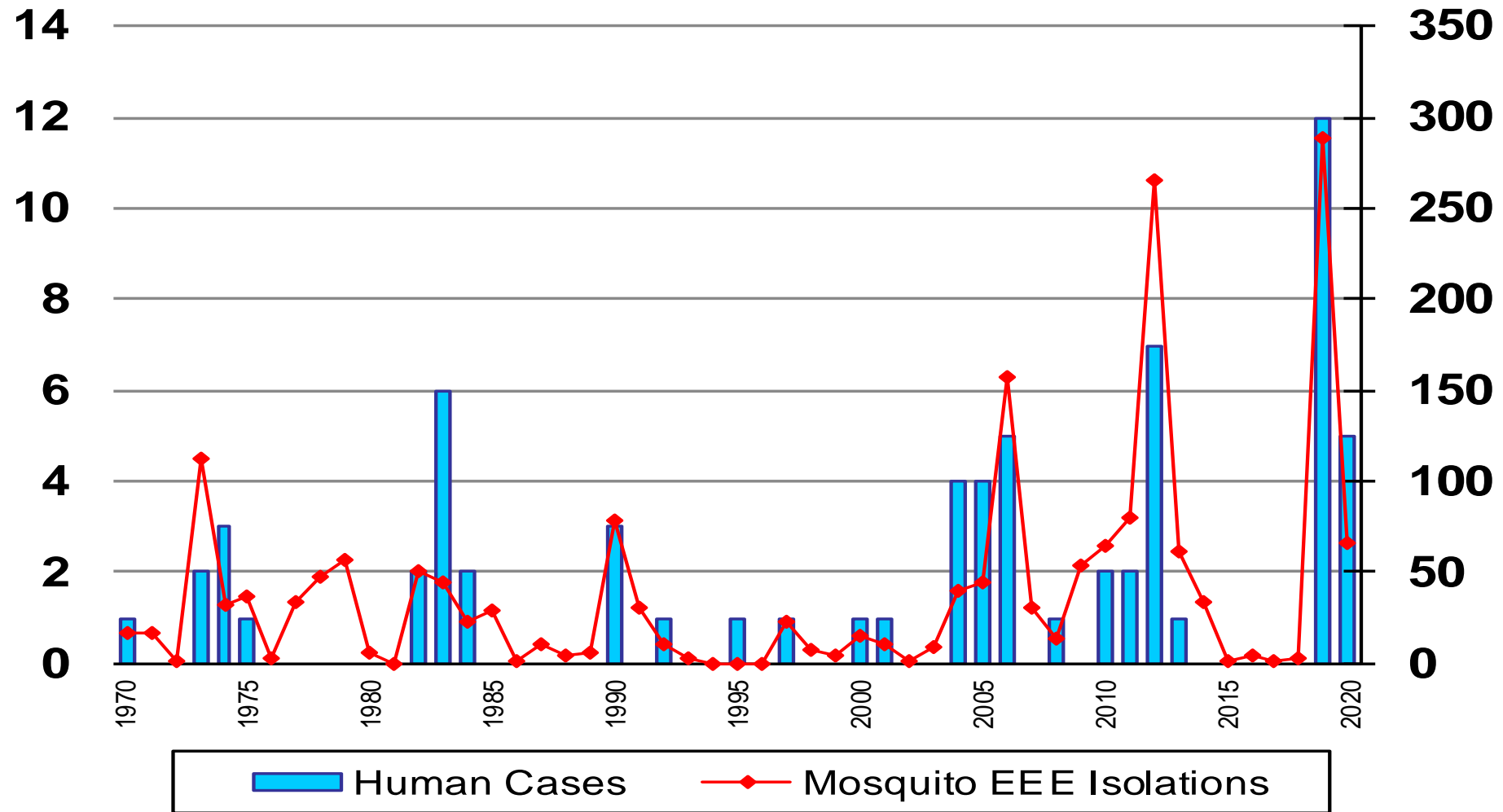
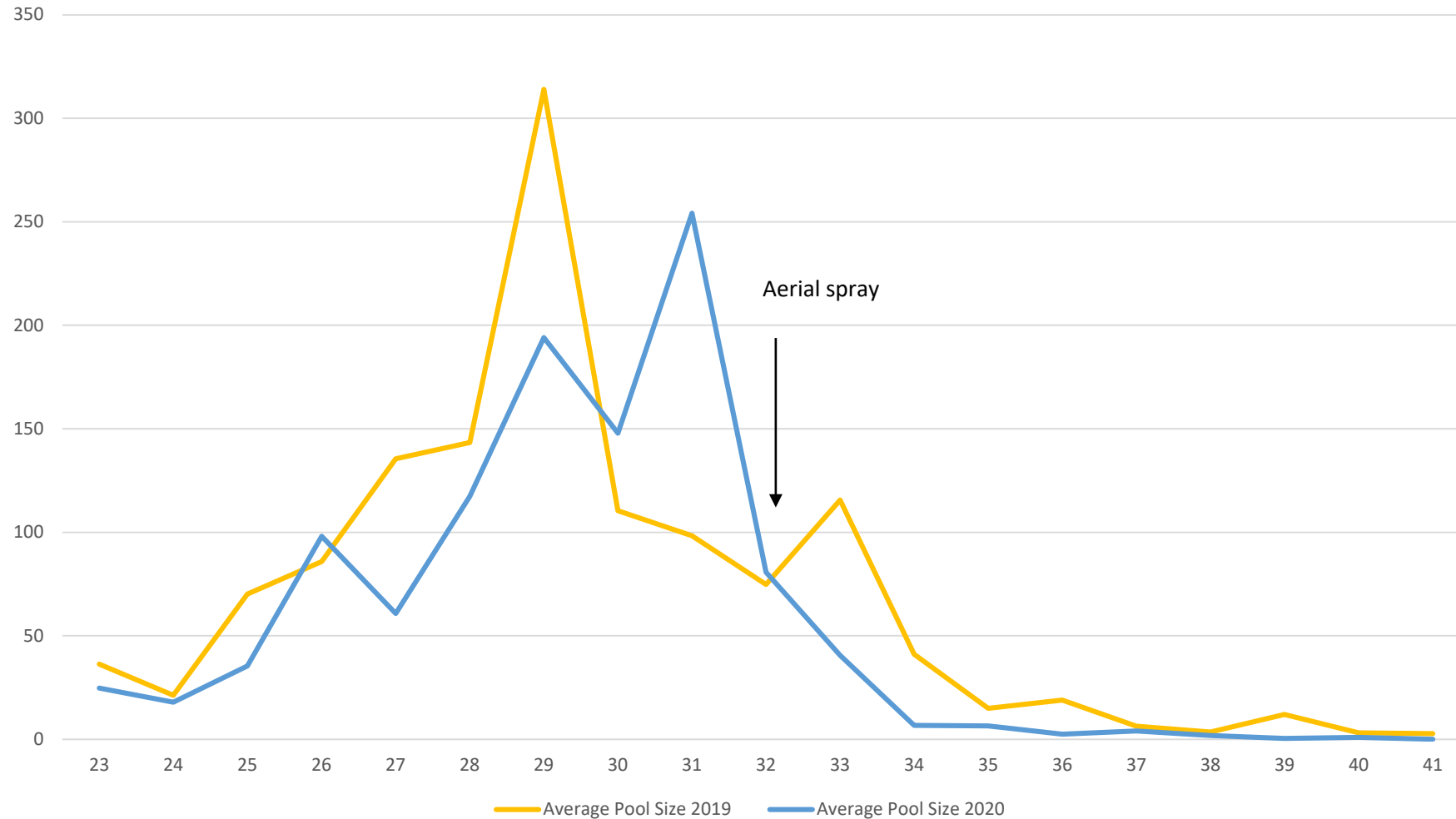*Culiseta melanura* Abundance at MDPH Longterm Trapsites: 2020 vs 5-year and 10-year means
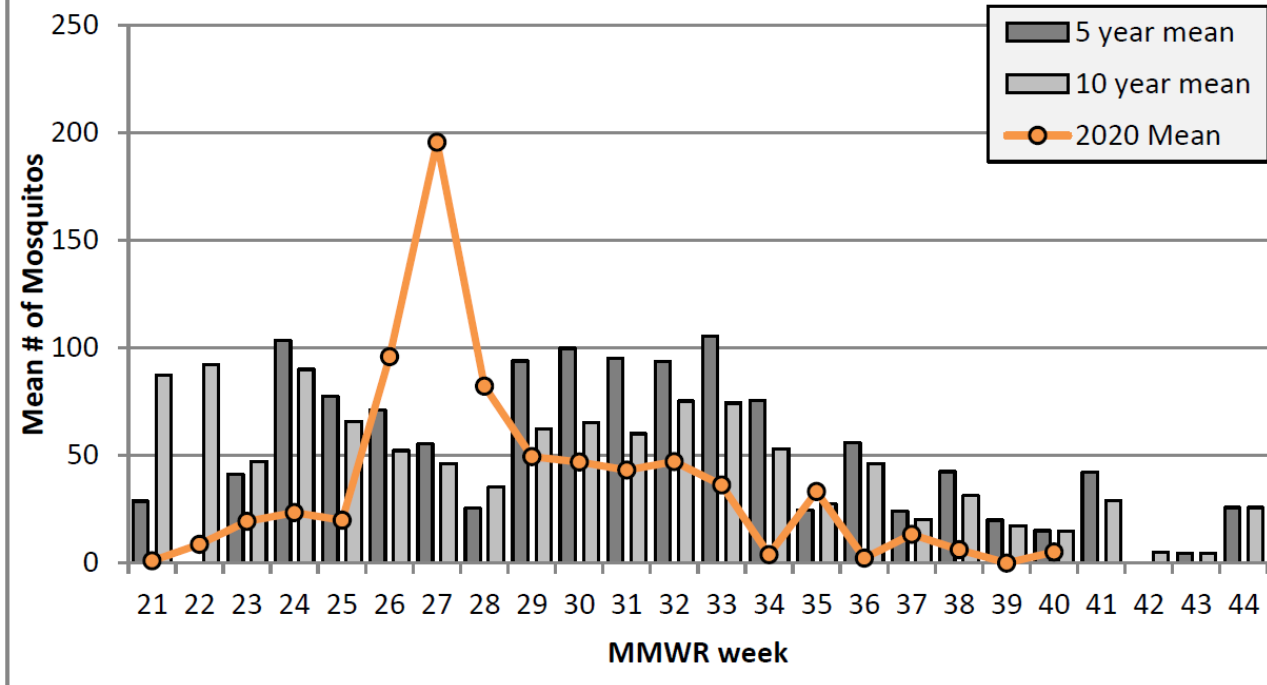
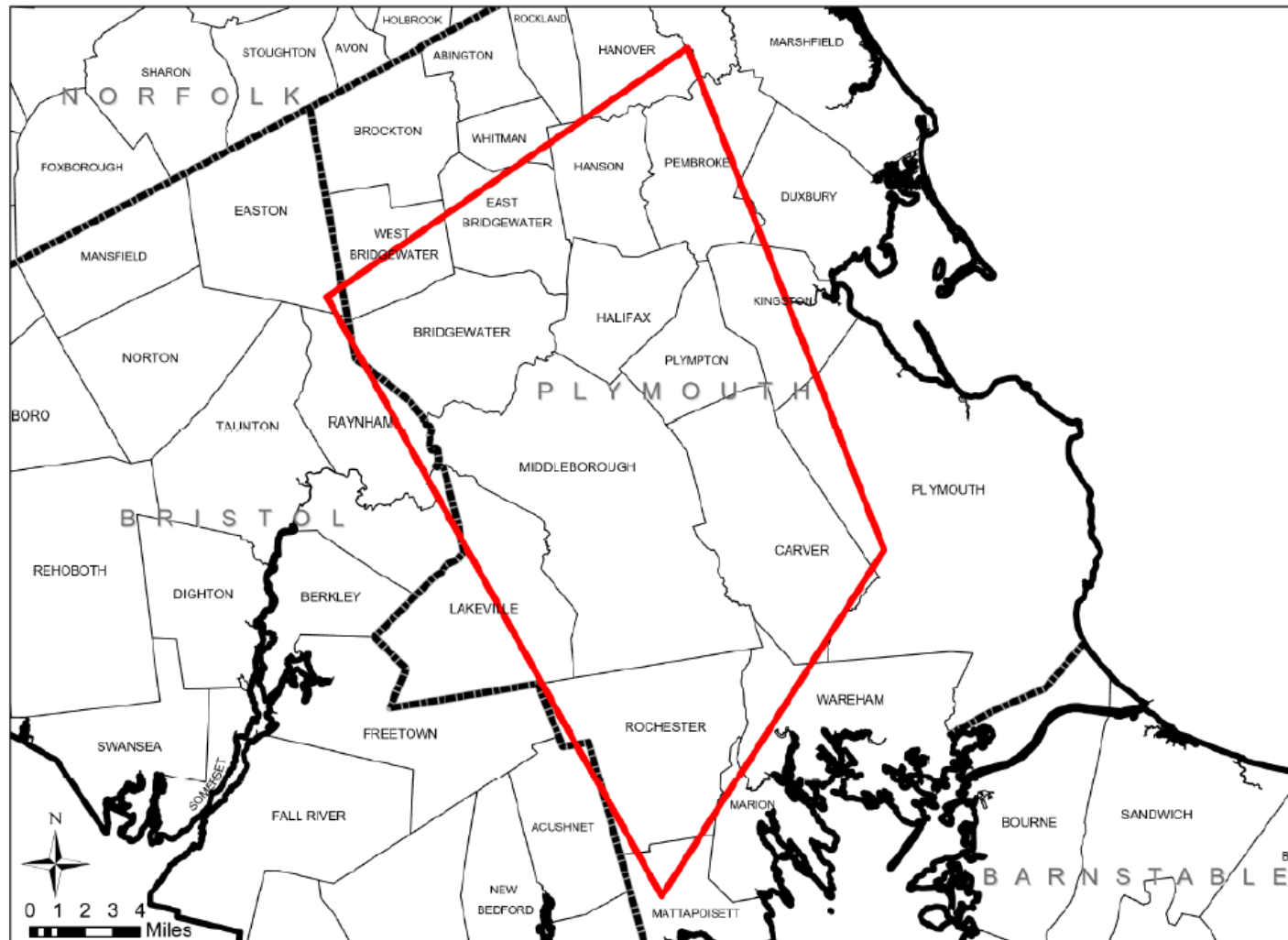*Culiseta melanura* Abundance at MDPH Longterm Trapsites: 2020 vs 2019
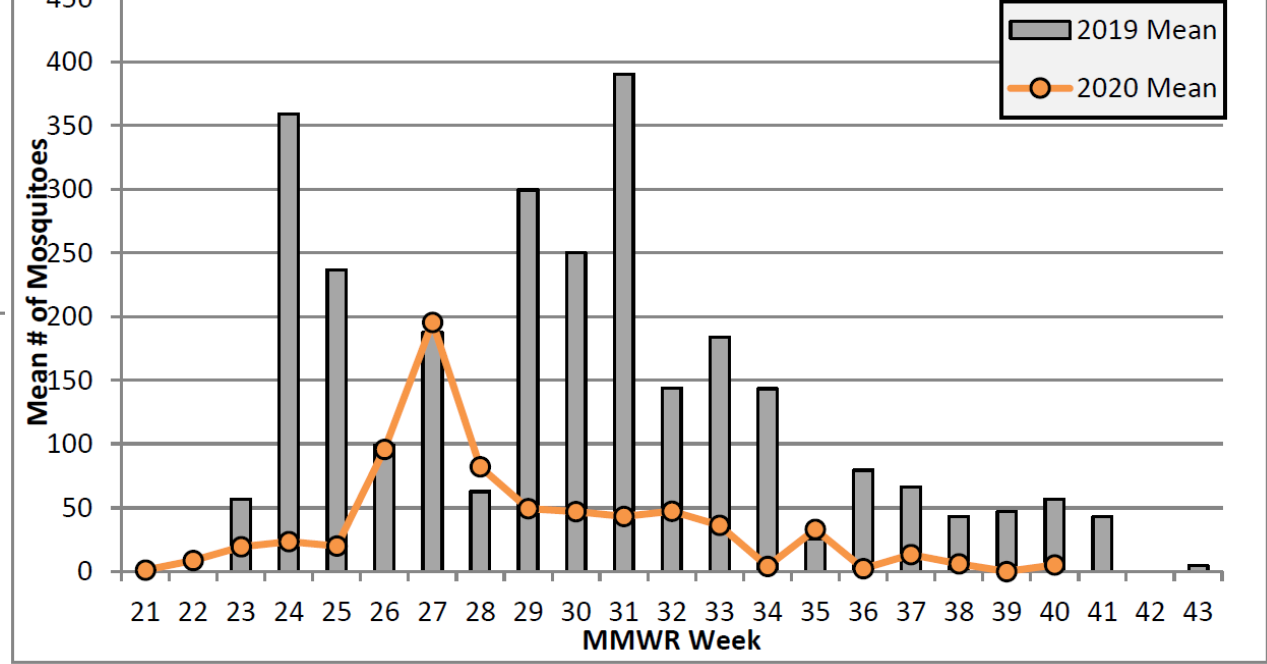
2020 vs 2019 & 5 Year Mean *Cs. melanura* Minimum Infection Rate (MIR) at MDPH Long Term Trapsites
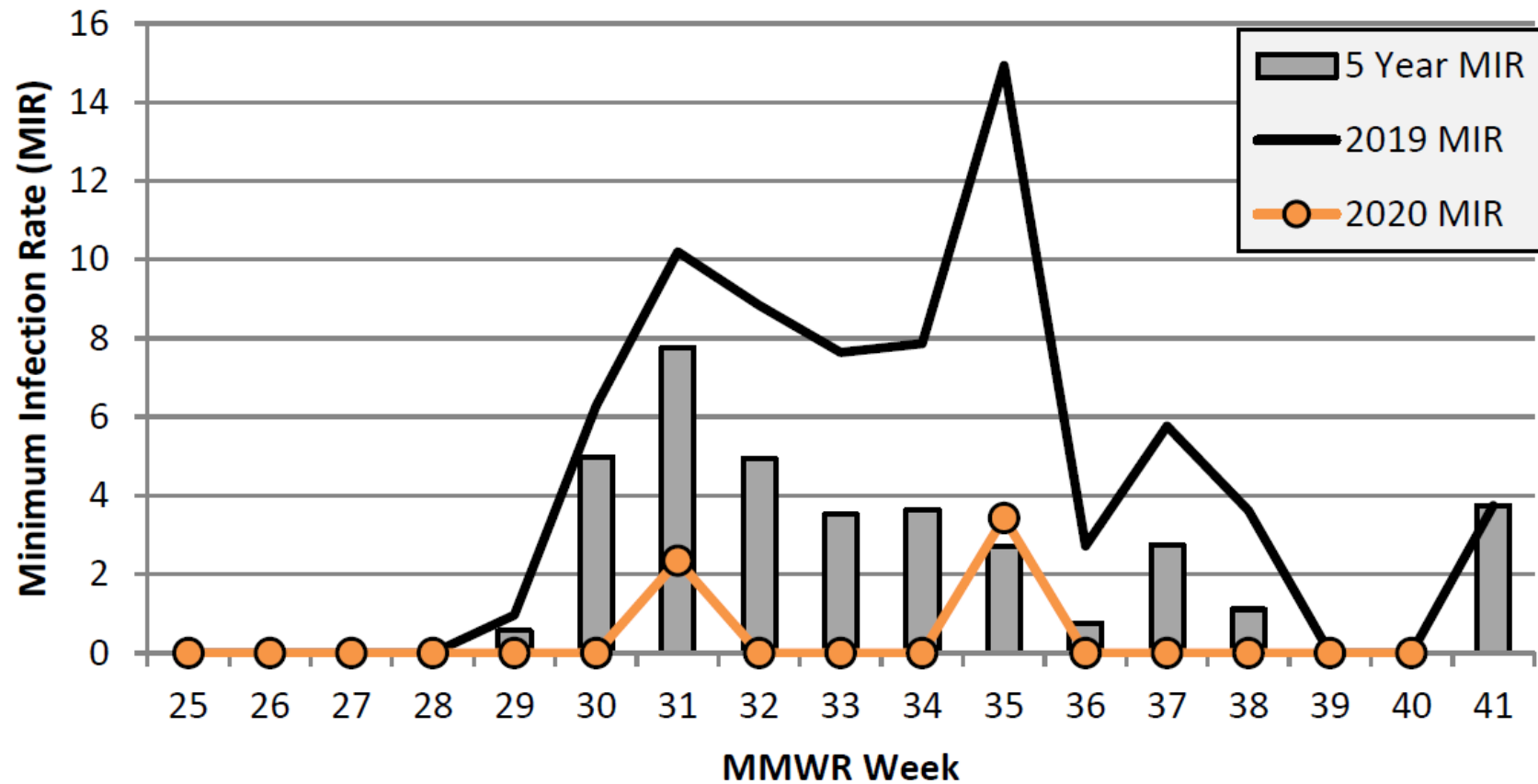
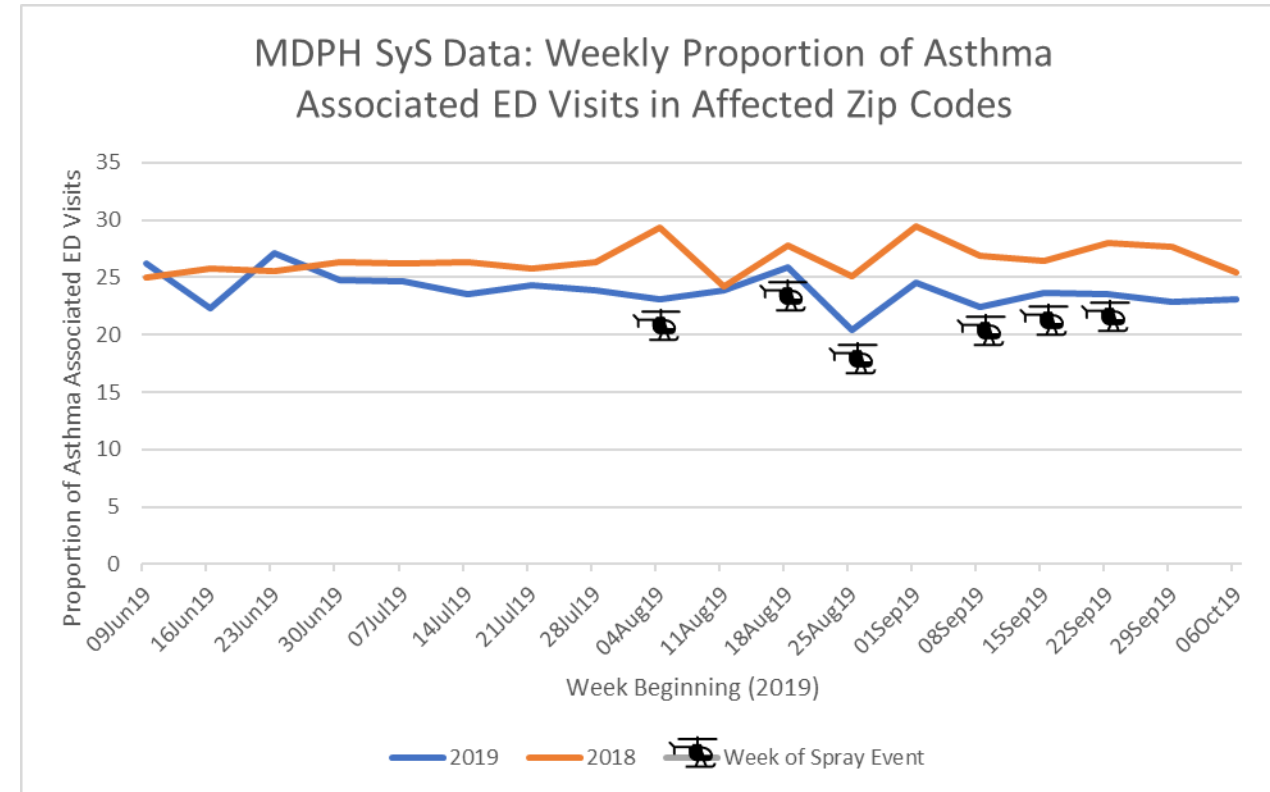# Average Number of Mammal-biting Mosquitoes

Single spray, August 10, 2020
178, 823 acres
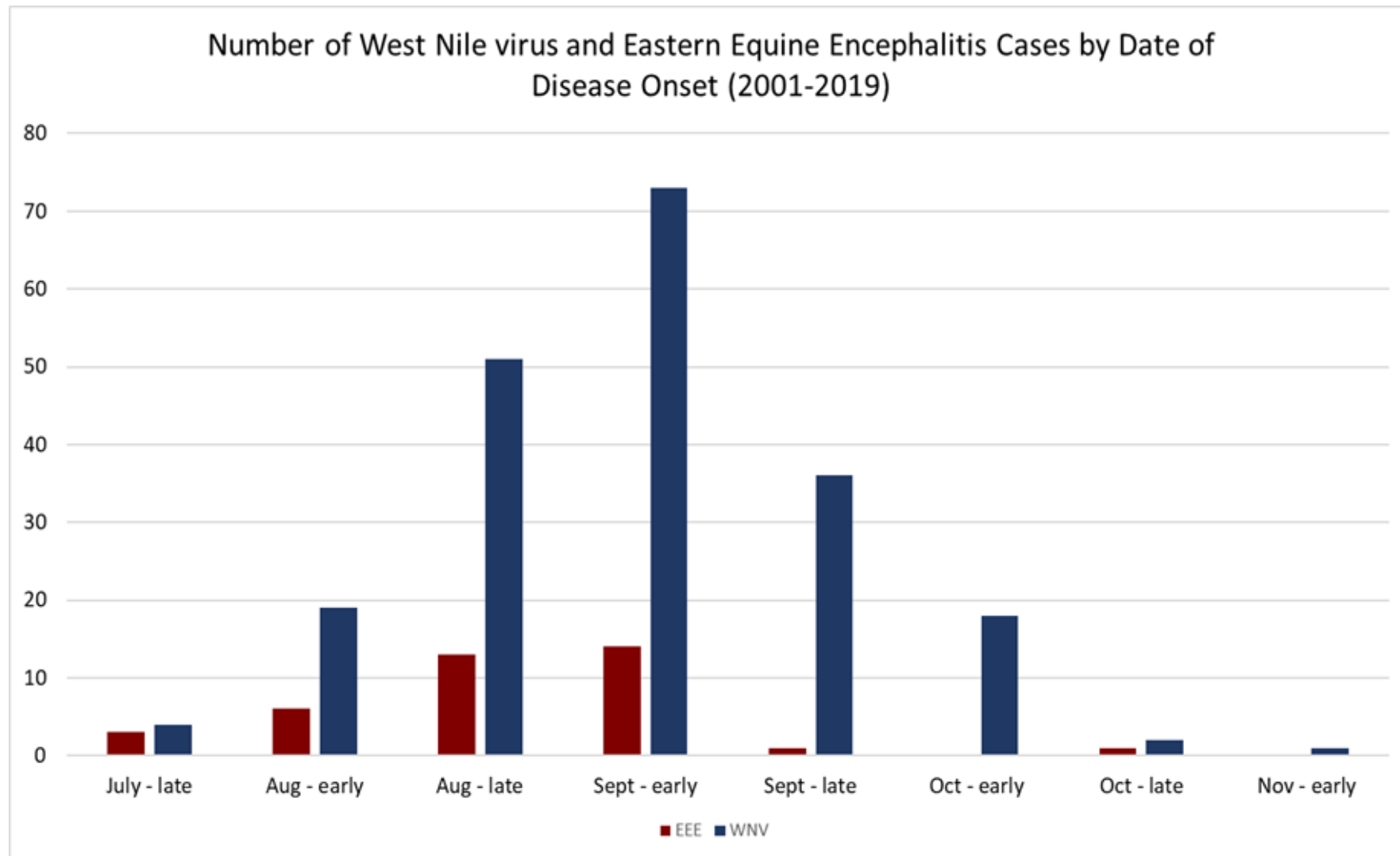6 hours

Aerial Spray Efficacy

Aerial Spray Efficacy: Percent Reduction in Mosquitoes Trapped Comparing Pre-Spray Trapping Numbers to Post-spray Trapping Numbers							
Aerial Intervention Location	**Start Date**	**End Date**	**Total Reduction in Primary Mosquito Vector[1,2]**	**Total Reduction in Mosquitoes Trapped**	**Temperature Range (°F)[3]**	**Dewpoint Range[4] (°F)**	**Acres per hour (average across all hours of spray)**
Bristol/Plymouth	8/8/2006	8/9/2006	35-92%	59-86%	59-64	53-57	17,499
Bristol/Plymouth	8/22/2006	8/24/2006	0-94%	60-89%	57-69	55-62	34,191
Bristol/Plymouth	8/5/2010	8/7/2010	87-89%	77-87%	58-79	57-73	26,194
Bristol/Plymouth	7/20/2012	7/22/2012	14-84%	42-81%	56-73	54-61	30,701
Bristol/Plymouth	8/13/2012	8/14/2006	46-60%	36-47%	66-73	64-66	21,981
Bristol/Plymouth	8/8/2019	8/11/2019	66%	58%	55-72	50-70	20,112
Bristol/Plymouth	8/21/2019	8/25/2019	91%	25%	57-77	51-74	15,066
Middlesex/Worcester	8/26/2019	8/27/2019	38%	20%	53-64	45-57	16,212
Middlesex/Norfolk/ Worcester	9/10/2019	9/18/2019	ND	ND	52-70	42-69	16,975
Hampden/Hampshire/Worcester	9/16/2019	9/17/2019	ND	ND	48-58	47-51	14,388
Bristol/Plymouth	9/18/2019	9/24/2019	ND	53%	54-70	51-67	12,125
Plymouth	8/10/2020		82%	70%			29,803
ND = Control not detected; calculations may be affected by small sample sizes							
[1]Primary mosquito vector is the mammal-biting species Coquillettidia perturbans considered to be the mosquito most likely to spread EEE to humans							
[2]Data sources includes DPH, and Bristol and Plymouth County Mosquito Control Districts. 2006-2012 data shown as ranges inclusive of all three data sources. 2019 combines data from all three sources into a single calculation.							
[3,4]Weather data taken from Plymouth, Worcester and Westover airports and may not accurately represent actual temperature and dewpoint at location of spraying.							

Human health effects of Anvil 10+10 (sumithrin and piperonyl butoxide)

- There are no human health risks expected during or after spraying

- There is no evidence that aerial spraying with the product will exacerbate health conditions such as asthma or chemical sensitivity

- No special precautions are recommended; however, residents may choose to reduce exposure by staying indoors during spraying

MDPH SyS Data: Weekly Proportion of Asthma Associated ED Visits in Affected Zip Codes

Number of West Nile virus and Eastern Equine Encephalitis Cases by Date of Disease Onset (2001-2019)

Thank You!

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