Covid-19 Health Metrics

January 21, 2021

MA State Data

Massachusetts Department of Public Health | COVID-19 Dashboard
Trends: 7-day Averages Over Time

Released on: January 21, 2021
Data as of: January 20, 2021
Caution: recent data may be incomplete

Navigation

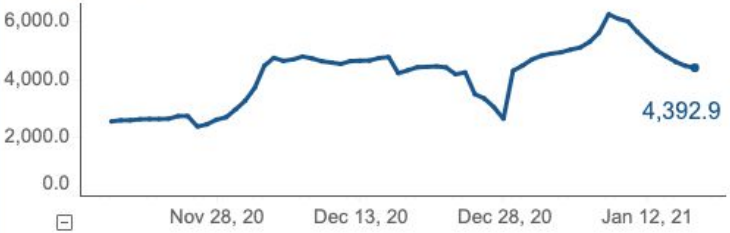
- Today's Overview
- Overview Trends
- COVID-19 Cases
- COVID-19 Testing
- Hospitalization
- COVID-19 Deaths
- Higher Ed & LTCF
- Patient Breakdown
- City and Town
- Resources
- Data Archive

Date Filter

11/17/2020 1/17/2021

Cases

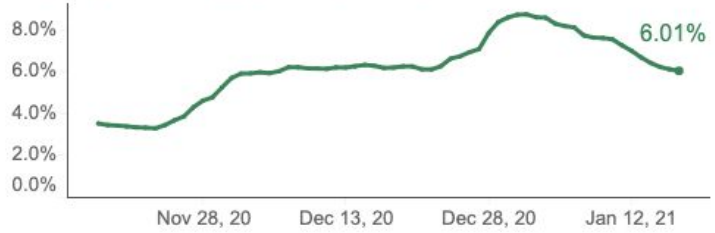
7-day average of COVID-19 confirmed cases



The lowest observed value was 156.7 on 7/4/2020.

Testing

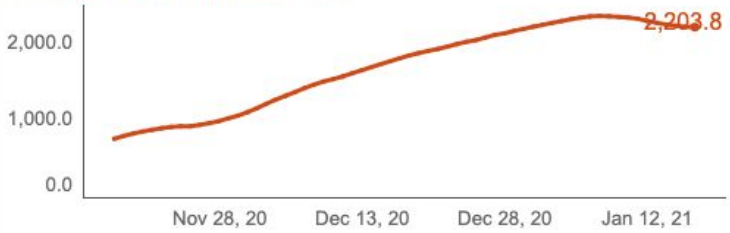
7-day weighted average percent positivity



The lowest observed value was 0.8% on 9/21/2020.

Hospitalizations

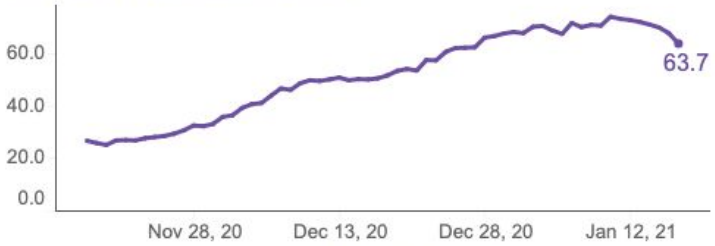
7-day average of hospitalizations



The lowest observed value was 155.3 on 8/26/2020.

Deaths

7-day average of confirmed deaths

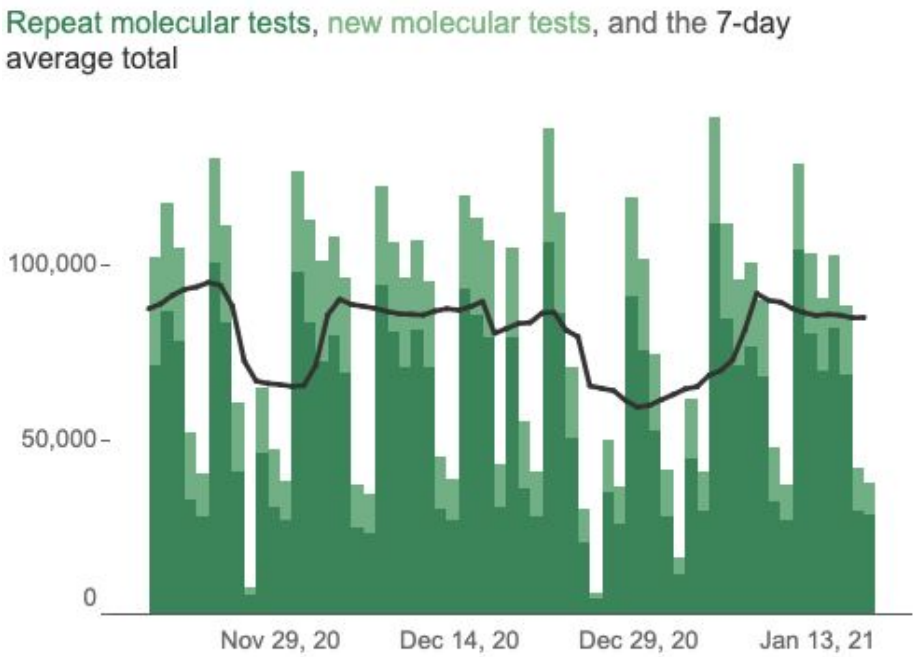


The lowest observed value was 3.7 on 9/9/2020.

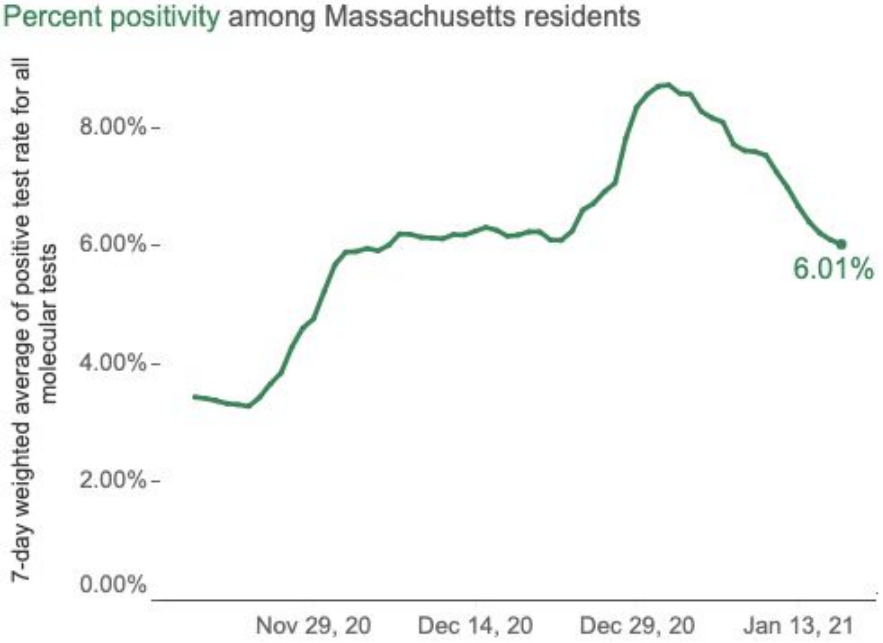
For details on the definitions of each indicator please see the corresponding tab for that indicator. All data included in this dashboard are preliminary and subject to change. Data Sources: COVID-19 Data provided by the Bureau of Infectious Disease and Laboratory Sciences and the Registry of Vital Records and Statistics; Created by the Massachusetts Department of Public Health, Bureau of Infectious Disease and Laboratory Sciences, Office of Integrated Surveillance and Informatics Services.

Covid-19 Testing

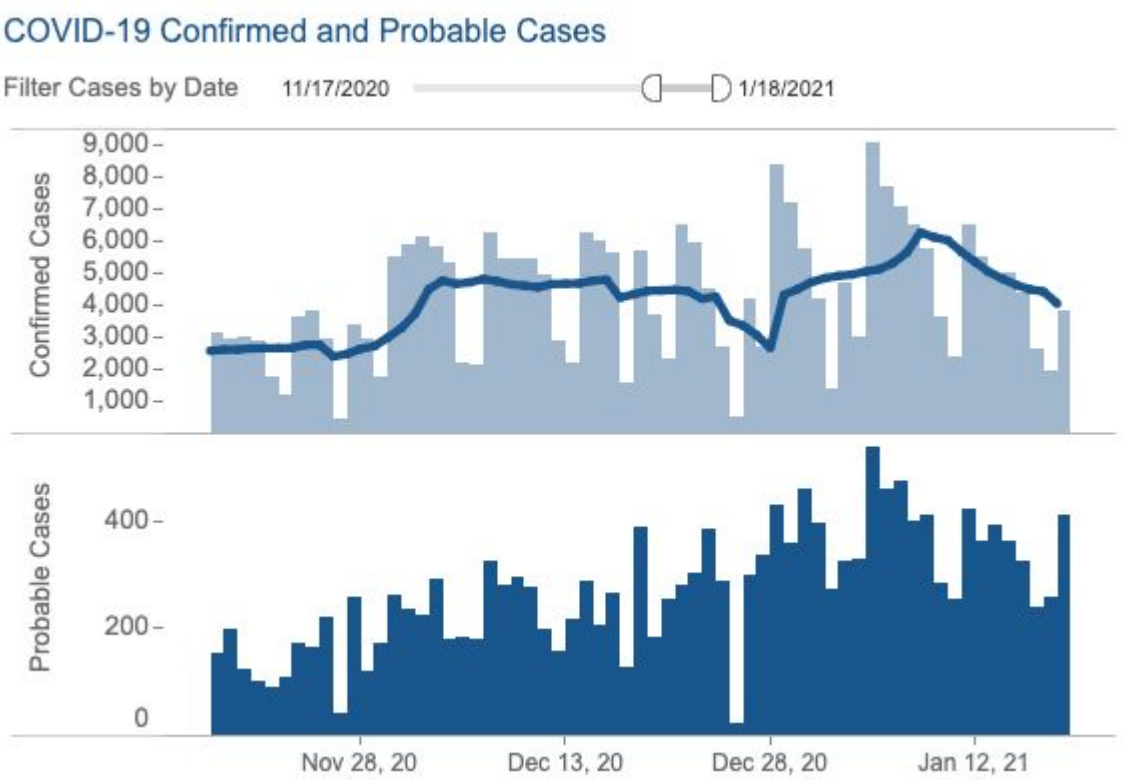
Number of Molecular Tests



Test Positivity



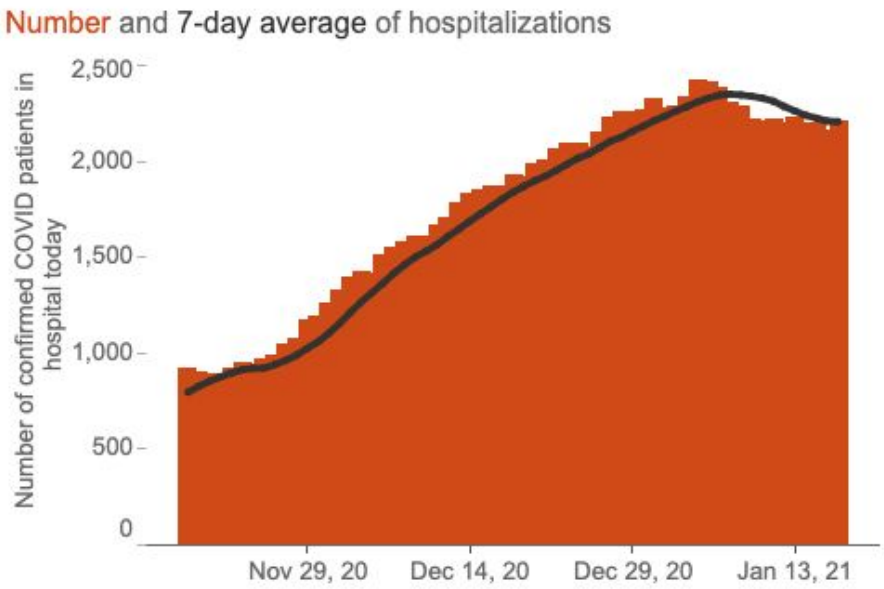
Covid-19 Cases

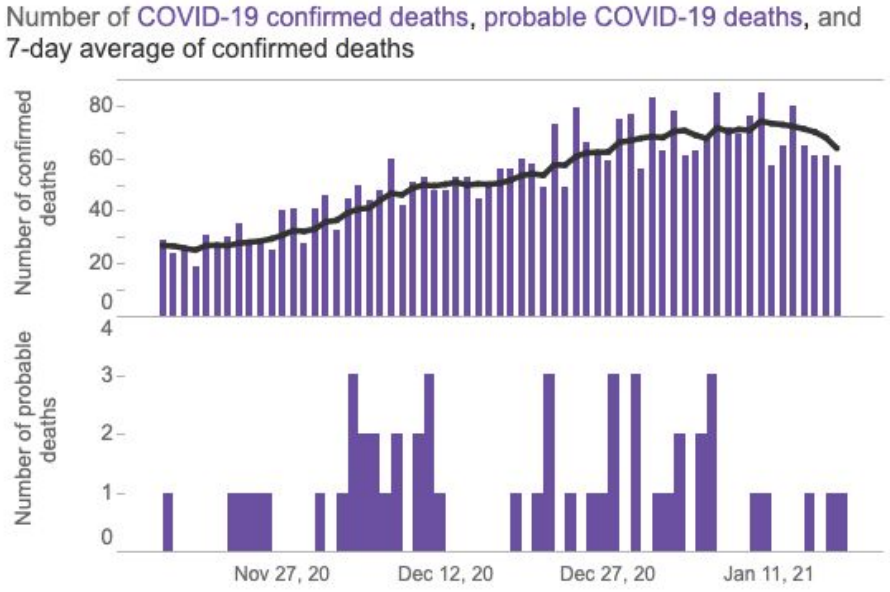


Incidence Rate

The 14-day, statewide incidence rate is 75.50 per 100,000 Massachusetts residents.

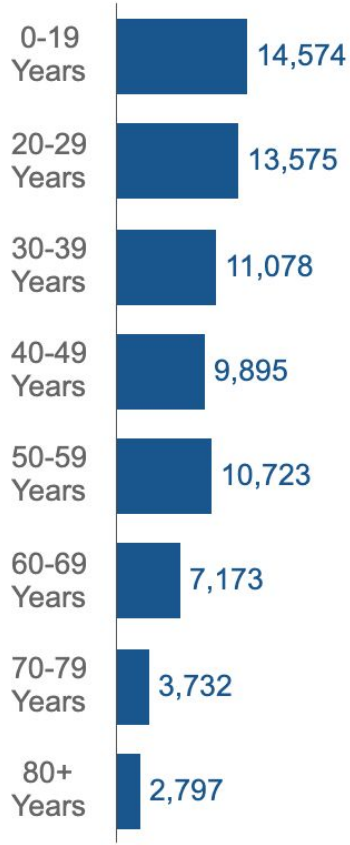
Hospitalizations and Deaths



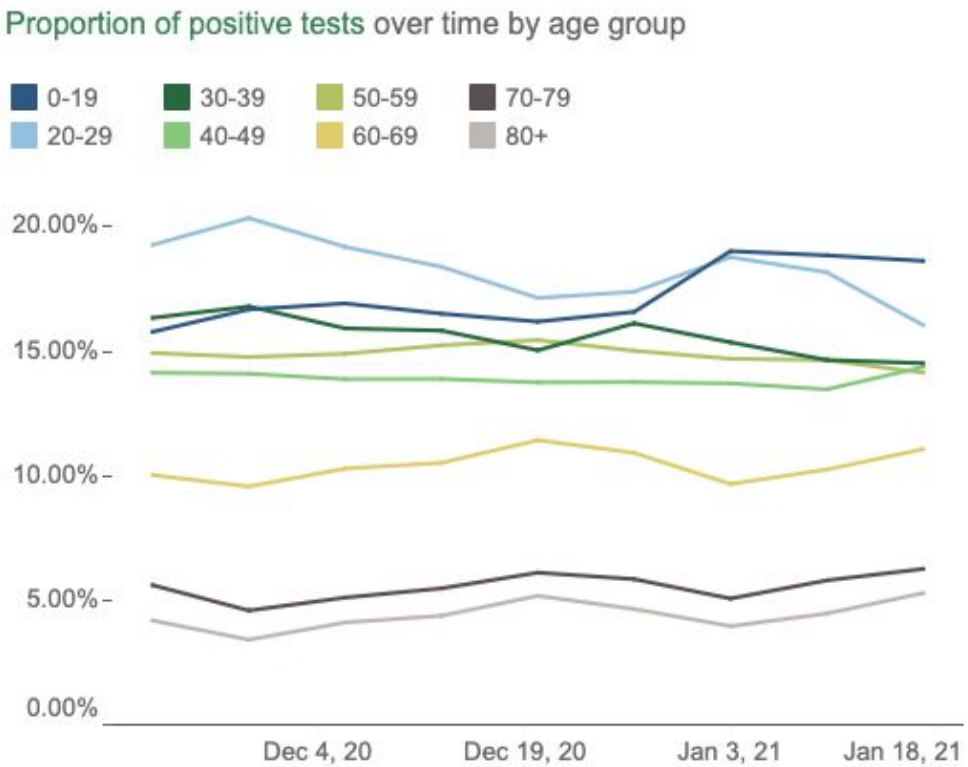


Cases by age during the last two weeks

*Data updated weekly



Test Positivity by Age Group



0-19 = 18.6%

20-29 = 16.0%

30-39 = 14.5%

40-49 = 14.5%

50-59 = 14.1%

60-69 = 11.3%

70-79 = 6.2%

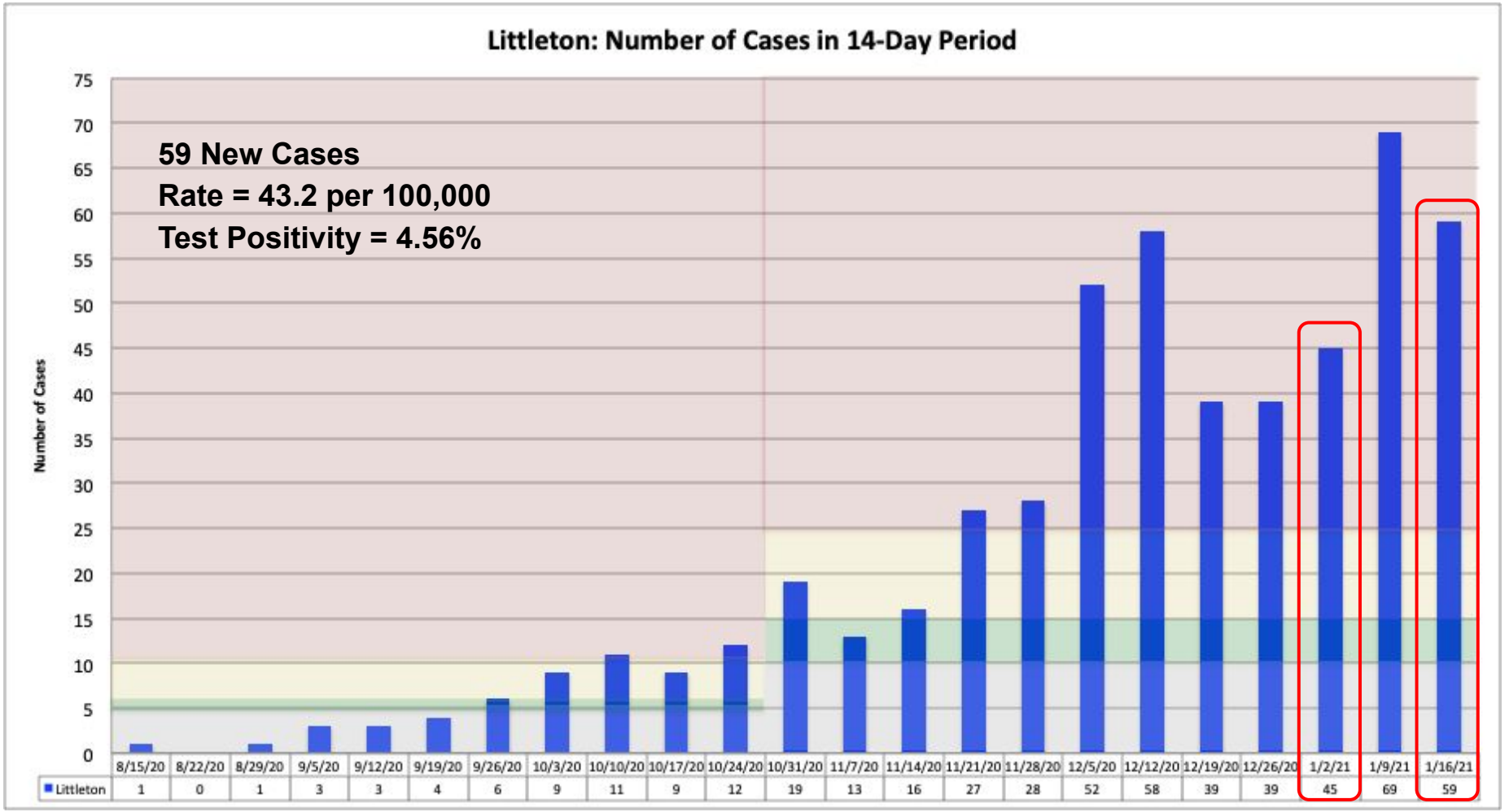
80+ = 5.3%

Littleton Data

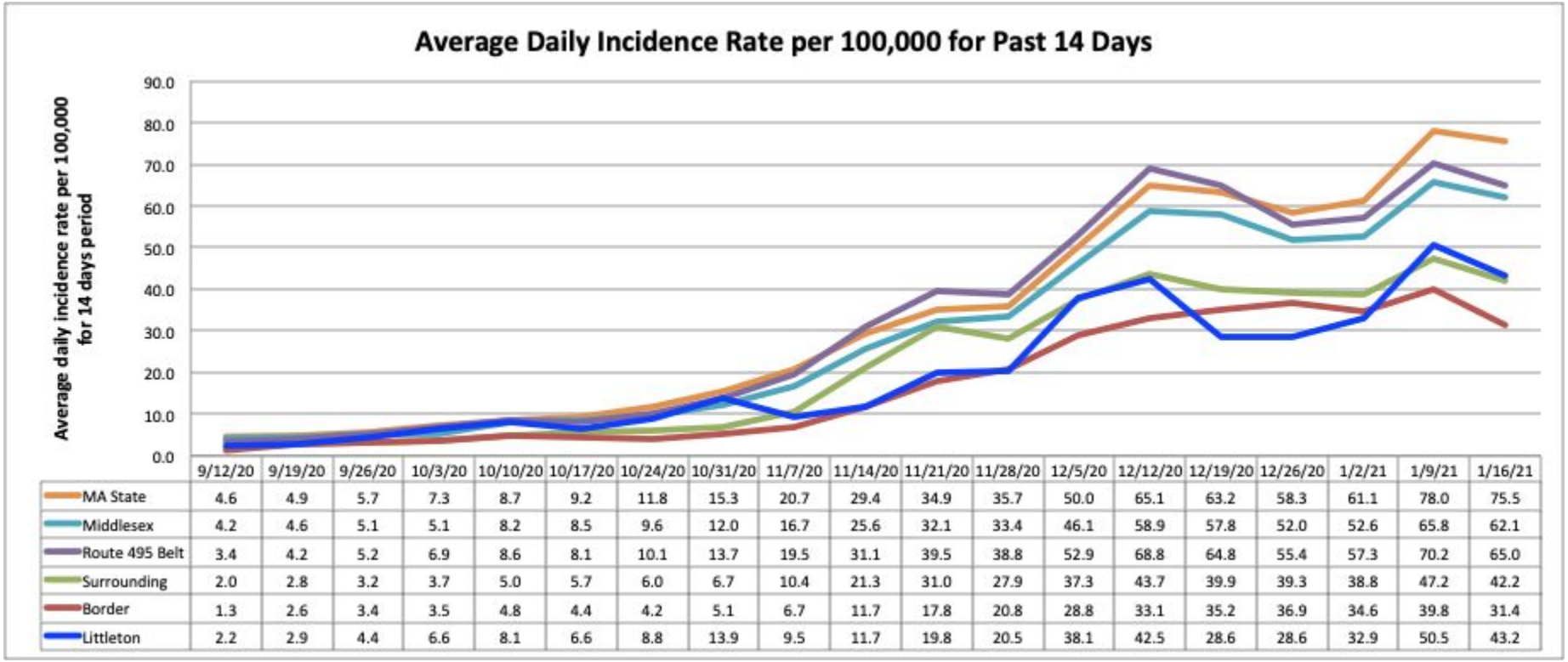
Average Daily Incidence Rate per 100,000 Color Calculations

	Population		
Group	**Under 10K**	**10K-50K**	**Over 50K**
Grey	Less than or equal to 10 total cases	Less than or equal to 10 total cases	Less than or equal to 15 total cases
Green	Less than or equal to 15 total cases	<10 avg cases/100k AND >10 total cases	<10 avg cases/100k AND >15 total cases
Yellow	Less than or equal to 25 total cases	≥10 avg cases/100k OR ≥5% pos rate	≥10 avg cases/100k OR ≥ 4% pos rate
Red	More than 25 total cases	≥10 avg cases/100k AND ≥5% pos rate	≥10 avg cases/100k AND ≥4% pos rate

As of 11/5, DPH is using 2019 population estimates derived from a method developed by the University of Massachusetts Donahue Institute.
The 2019 estimates are the most currently available data.

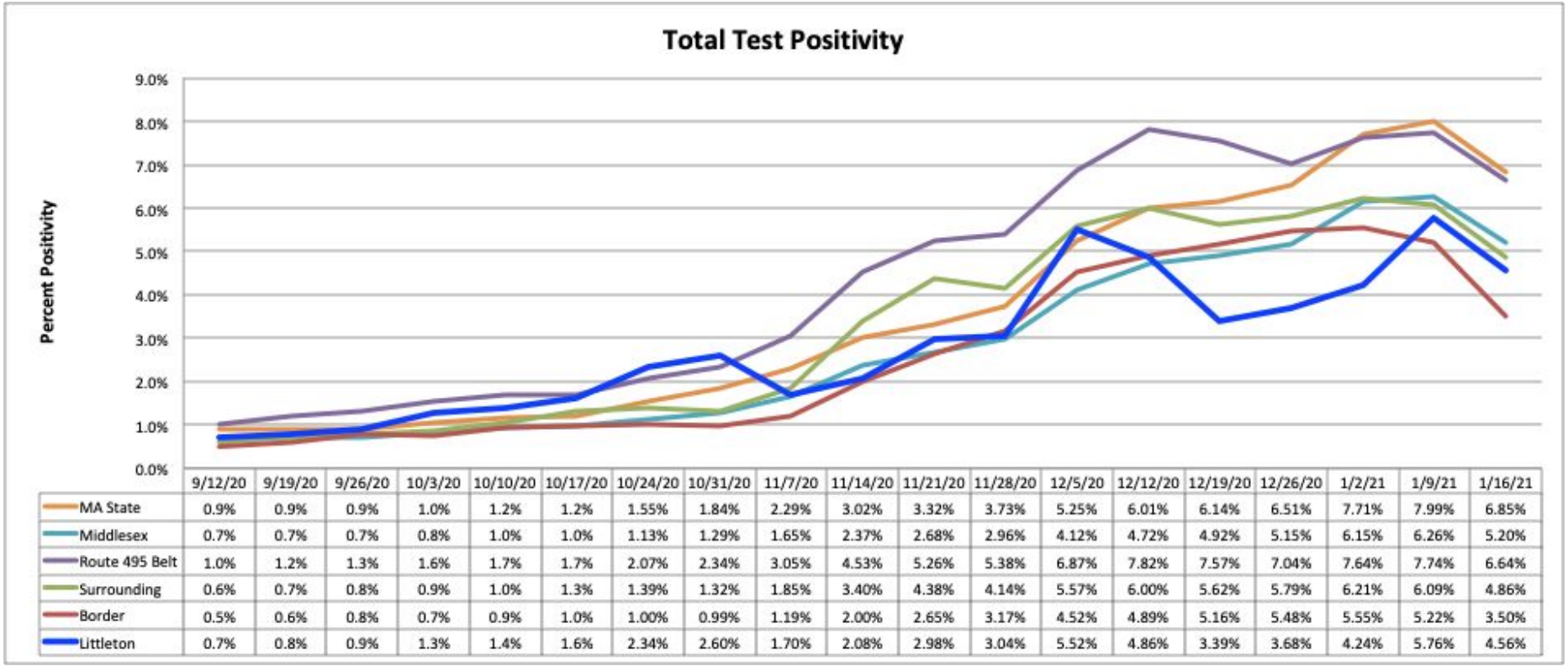

Littleton: Number of Cases in 14-Day Period
59 New Cases
Rate = 43.2 per 100,000
Test Positivity = 4.56%
Number of Cases
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
8/15/20 8/22/20 8/29/20 9/5/20 9/12/20 9/19/20 9/26/20 10/3/20 10/10/20 10/17/20 10/24/20 10/31/20 11/7/20 11/14/20 11/21/20 11/28/20 12/5/20 12/12/20 12/19/20 12/26/20 1/2/21 1/9/21 1/16/21
Littleton 1 0 1 3 3 4 6 9 11 9 12 19 13 16 27 28 52 58 39 39 45 69 59

Average Daily Incidence Rate per 100,000 for Past 14 Days



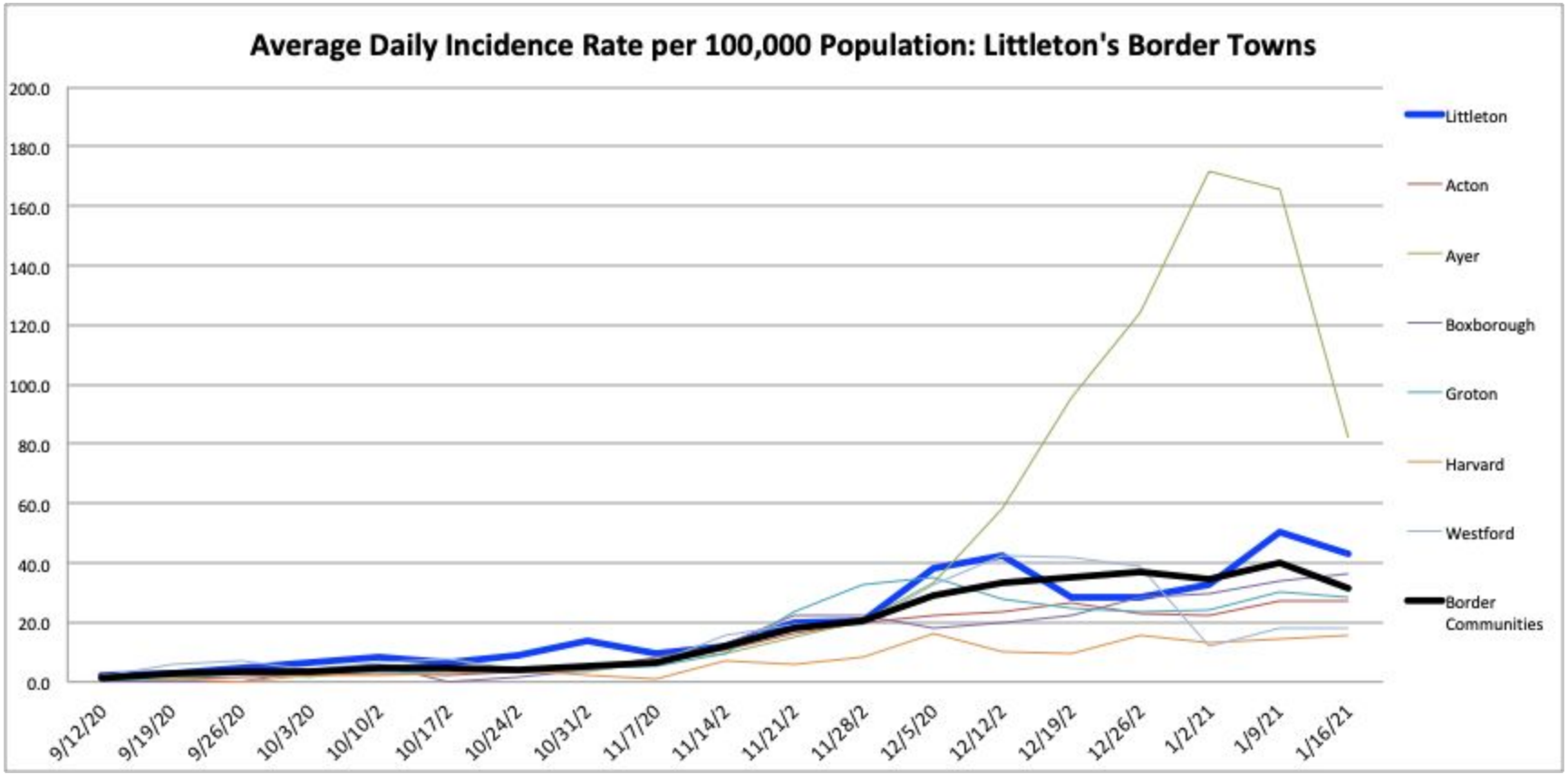
	9/12/20	9/19/20	9/26/20	10/3/20	10/10/20	10/17/20	10/24/20	10/31/20	11/7/20	11/14/20	11/21/20	11/28/20	12/5/20	12/12/20	12/19/20	12/26/20	1/2/21	1/9/21	1/16/21
MA State	4.6	4.9	5.7	7.3	8.7	9.2	11.8	15.3	20.7	29.4	34.9	35.7	50.0	65.1	63.2	58.3	61.1	78.0	75.5
Middlesex	4.2	4.6	5.1	5.1	8.2	8.5	9.6	12.0	16.7	25.6	32.1	33.4	46.1	58.9	57.8	52.0	52.6	65.8	62.1
Route 495 Belt	3.4	4.2	5.2	6.9	8.6	8.1	10.1	13.7	19.5	31.1	39.5	38.8	52.9	68.8	64.8	55.4	57.3	70.2	65.0
Surrounding	2.0	2.8	3.2	3.7	5.0	5.7	6.0	6.7	10.4	21.3	31.0	27.9	37.3	43.7	39.9	39.3	38.8	47.2	42.2
Border	1.3	2.6	3.4	3.5	4.8	4.4	4.2	5.1	6.7	11.7	17.8	20.8	28.8	33.1	35.2	36.9	34.6	39.8	31.4
Littleton	2.2	2.9	4.4	6.6	8.1	6.6	8.8	13.9	9.5	11.7	19.8	20.5	38.1	42.5	28.6	28.6	32.9	50.5	43.2

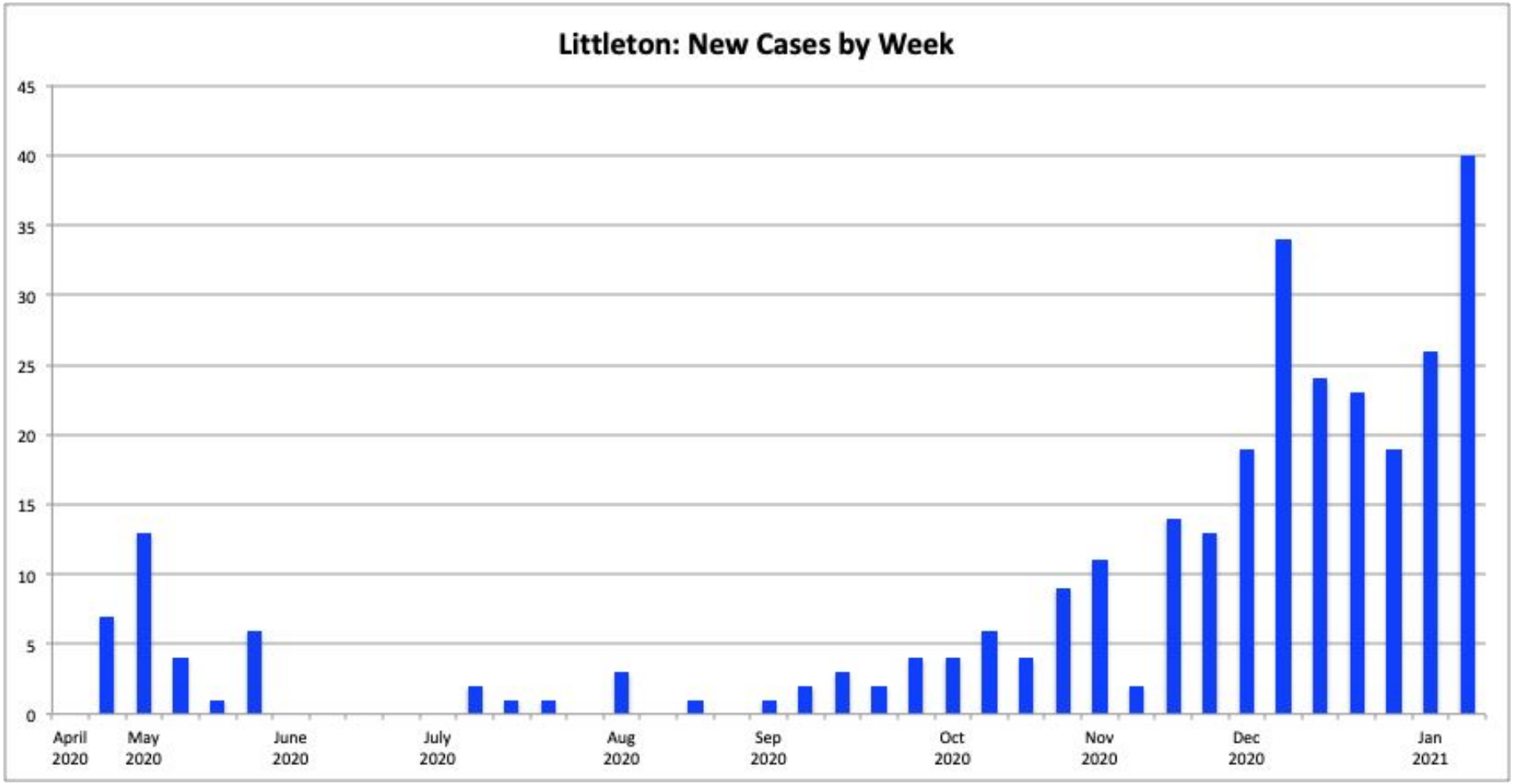
Littleton: Rate 43.5 per 100k



	9/12/20	9/19/20	9/26/20	10/3/20	10/10/20	10/17/20	10/24/20	10/31/20	11/7/20	11/14/20	11/21/20	11/28/20	12/5/20	12/12/20	12/19/20	12/26/20	1/2/21	1/9/21	1/16/21
MA State	0.9%	0.9%	0.9%	1.0%	1.2%	1.2%	1.55%	1.84%	2.29%	3.02%	3.32%	3.73%	5.25%	6.01%	6.14%	6.51%	7.71%	7.99%	6.85%
Middlesex	0.7%	0.7%	0.7%	0.8%	1.0%	1.0%	1.13%	1.29%	1.65%	2.37%	2.68%	2.96%	4.12%	4.72%	4.92%	5.15%	6.15%	6.26%	5.20%
Route 495 Belt	1.0%	1.2%	1.3%	1.6%	1.7%	1.7%	2.07%	2.34%	3.05%	4.53%	5.26%	5.38%	6.87%	7.82%	7.57%	7.04%	7.64%	7.74%	6.64%
Surrounding	0.6%	0.7%	0.8%	0.9%	1.0%	1.3%	1.39%	1.32%	1.85%	3.40%	4.38%	4.14%	5.57%	6.00%	5.62%	5.79%	6.21%	6.09%	4.86%
Border	0.5%	0.6%	0.8%	0.7%	0.9%	1.0%	1.00%	0.99%	1.19%	2.00%	2.65%	3.17%	4.52%	4.89%	5.16%	5.48%	5.55%	5.22%	3.50%
Littleton	0.7%	0.8%	0.9%	1.3%	1.4%	1.6%	2.34%	2.60%	1.70%	2.08%	2.98%	3.04%	5.52%	4.86%	3.39%	3.68%	4.24%	5.76%	4.56%

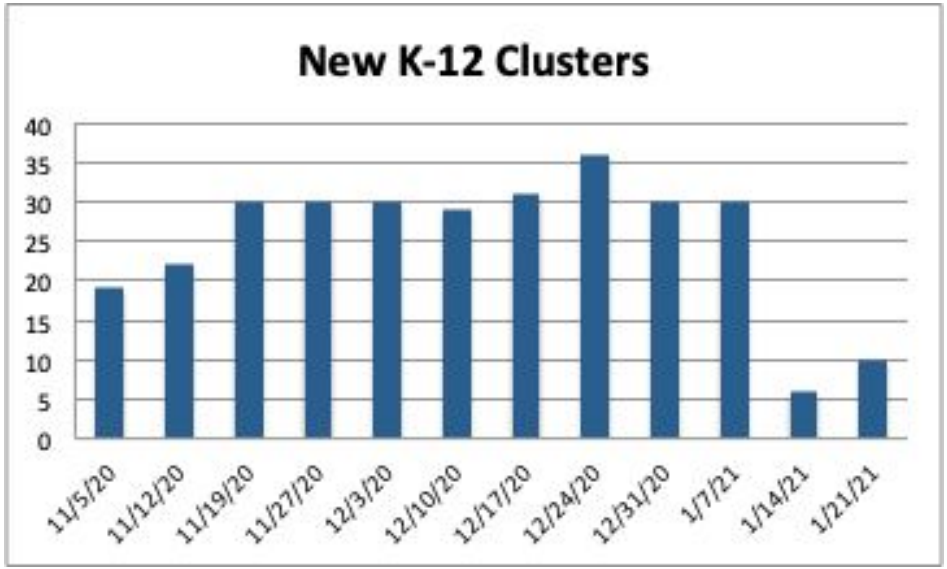
Littleton: 1381 tests (20% increase) Test positivity 4.56% (0.32% higher)

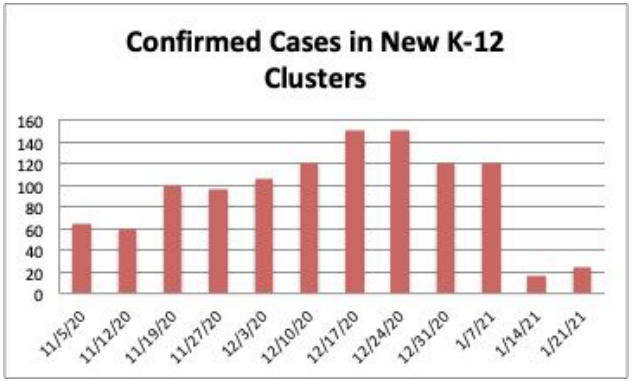

Average Daily Incidence Rate per 100,000 Population: Littleton's Border Towns
200.0
180.0
160.0
140.0
120.0
100.0
80.0
60.0
40.0
20.0
0.0
9/12/20
9/19/20
9/26/20
10/3/20
10/10/2
10/17/2
10/24/2
10/31/2
11/7/20
11/14/2
11/21/2
11/28/2
12/5/20
12/12/2
12/19/2
12/26/2
1/2/21
1/9/21
1/16/21
Littleton
Acton
Ayer
Boxborough
Groton
Harvard
Westford
Border Communities


Littleton: New Cases by Week
45
40
35
30
25
20
15
10
5
0
April 2020
May 2020
June 2020
July 2020
Aug 2020
Sep 2020
Oct 2020
Nov 2020
Dec 2020
Jan 2021

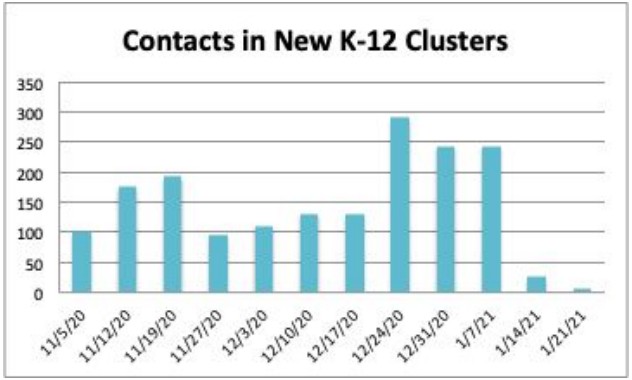
MA School Data

MA DPH Data K-12 Clusters



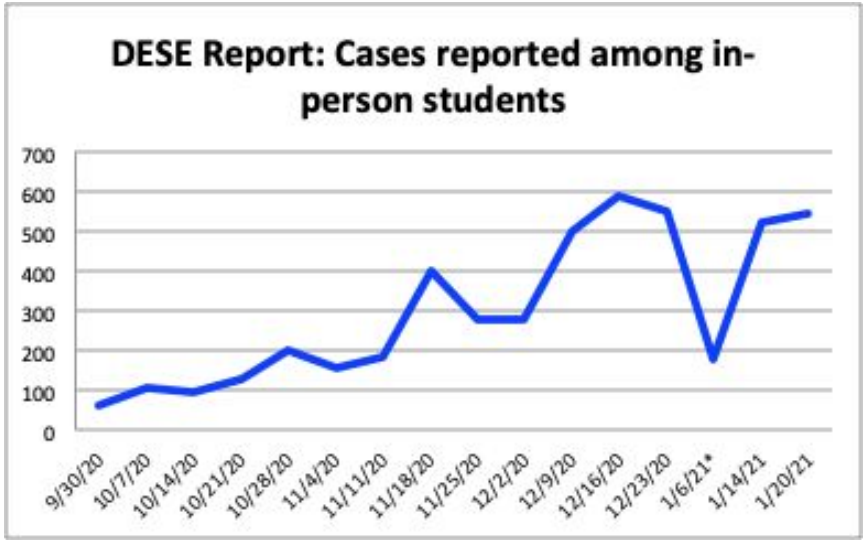


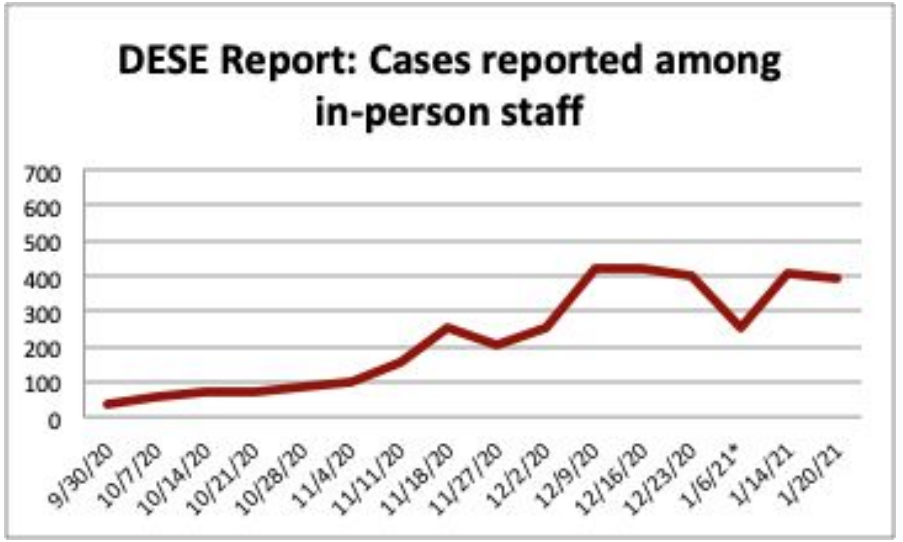
Average Cases per Cluster = 2.5



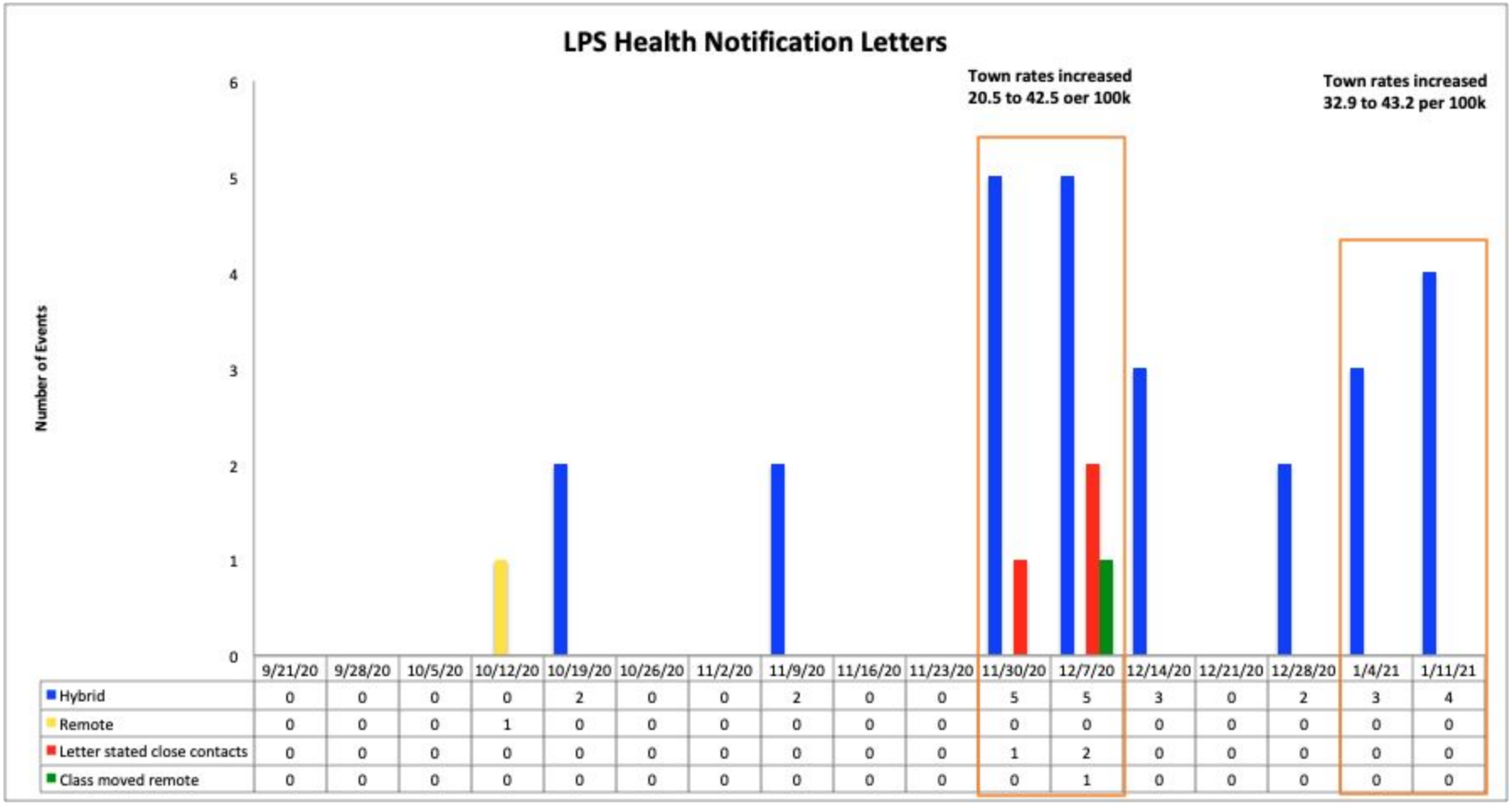
Average Cases per Cluster = 0.7

DESE Positive Cases in MA Schools





LPS Health Notification Letters



	9/21/20	9/28/20	10/5/20	10/12/20	10/19/20	10/26/20	11/2/20	11/9/20	11/16/20	11/23/20	11/30/20	12/7/20	12/14/20	12/21/20	12/28/20	1/4/21	1/11/21
Hybrid	0	0	0	0	2	0	0	2	0	0	5	5	3	0	2	3	4
Remote	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Letter stated close contacts	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0
Class moved remote	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0

Covid-19 Long Term Health Effects

Long Term Health Impacts of COVID-19

Most Common Long-Term Symptoms

- Fatigue
- Shortness of Breath
- Cough
- Joint Pain
- Chest Pain

Other Reported Long-Term Symptoms

- Difficulty thinking or concentrating (brain fog)
- Depression
- Muscle Pain
- Headache
- Intermittent fever
- Fast beating heart (palpitations)

More Serious Long-Term Complications

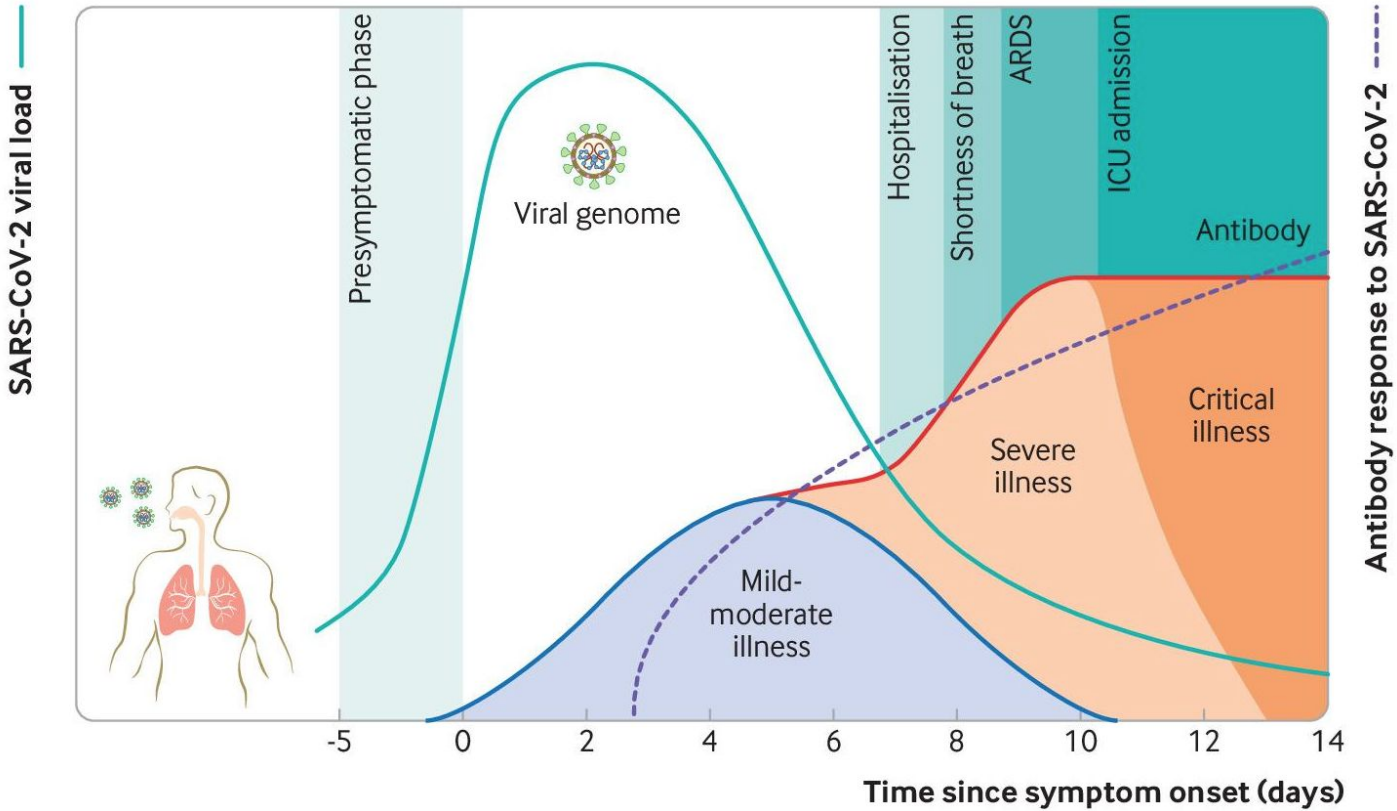
- Cardiovascular: inflammation of heart muscle
- Respiratory: Lung function abnormalities
- Renal: Acute kidney injury
- Dermatologic: rash, hair loss
- Neurological: smell and taste issues, sleep issues, difficulty concentrating, memory problems
- Psychiatric: depression, anxiety, change in mood

Even people who are not hospitalized and have mild illness can experience persistent or late symptoms

Young survivors, even physically fit prior to infection, have reported symptoms months after acute illness

Sources: https://www.cdc.gov/coronavirus/2019-ncov/long-term-effects.html
https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-care/late-sequelae.html

Testing



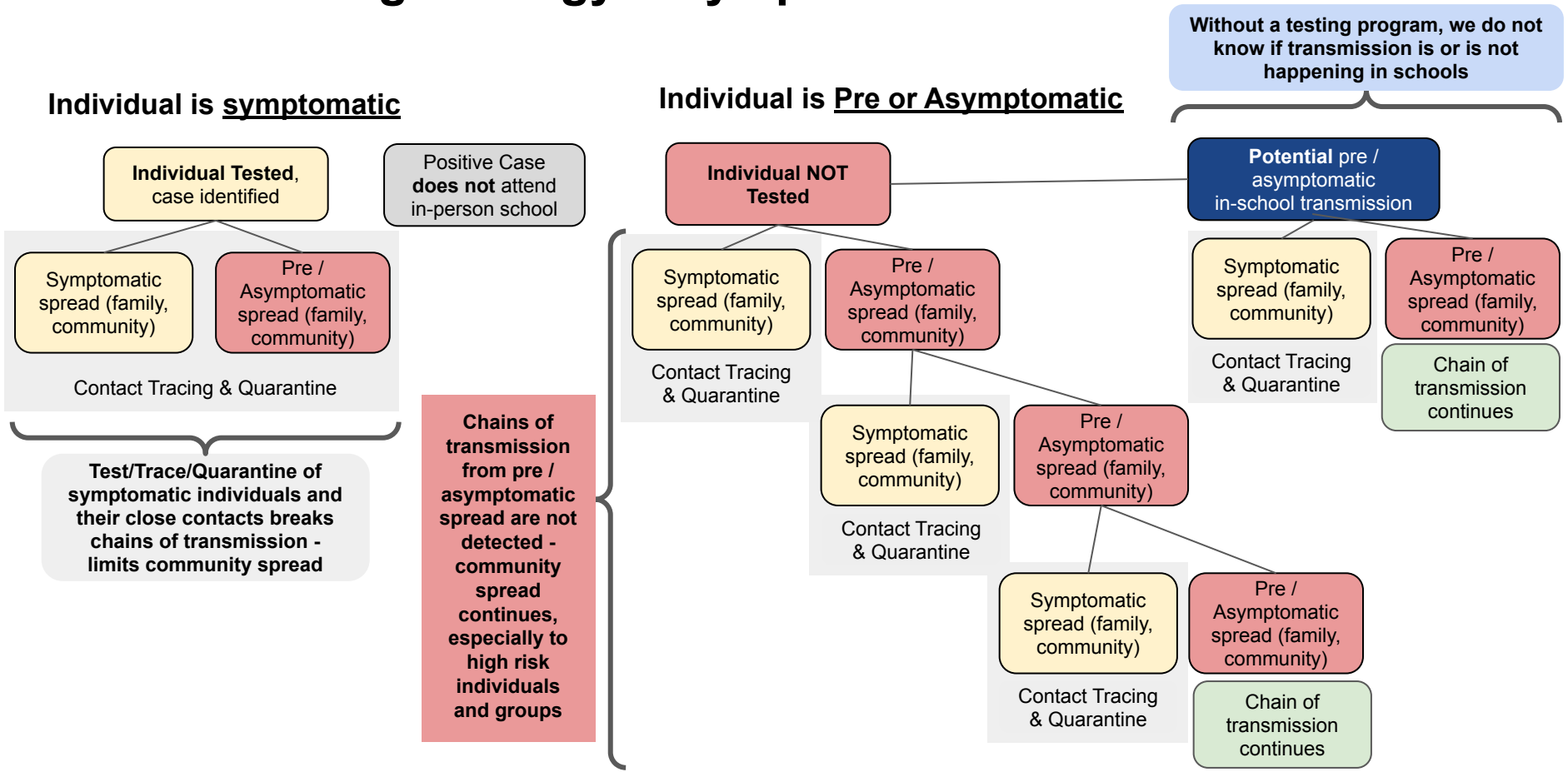
Pre / asymptomatic transmission can occur 1-3 days *before* symptom onset

20-40% of cases do not report any symptoms

Up to 50% of spread attributable to “silent transmission” from pre/asymptomatic infections

References:
Cevik M, Kuppalli K, Kindrachuk J, Peiris M. Virology, transmission, and pathogenesis of SARS-CoV-2. BMJ 2020;371:m3862
Moghadas SM, Fitzpatrick MC, Sah P, et al. The implications of silent transmission for the control of Covid-19 outbreaks. PNAS 2020;117(30):17513-17515
Denny TN, Andrews L, Bonsignori M, et al. Implementation of a pooled surveillance testing program for asymptomatic SARS-CoV-2 infections on a college campus - Duke University, Durham, North Carolina, August 2-October 11, 2020. CDC MMWR;69(45):1743-1747
CDC https://www.cdc.gov/coronavirus/2019-ncov/hcp/planning-scenarios.html

Current Testing Strategy = Symptomatic / Close Contacts



Overview: Studies on Covid-19 in Schools

- Kids more likely to be asymptomatic → less likely to be tested with current symptomatic testing strategies → limits case identification in school settings (case underascertainment)
- Current close contact definition (within 6 feet for cumulative 15 minutes in 24 hour period) limits who is instructed to seek testing → prevents estimation of in school transmission rates (secondary attack rates)
- Most school studies are limited to study of rates in the absence of surveillance testing → do not directly measure potential in-school transmission
- Heterogeneity of “Hybrid” school models impact interpretation of results
  - Different mitigation strategies (masks, distance, duration, ventilation, lunch, cohorts) may lead to differences in in-school transmission dynamics
  - Lack denominators for how many people are in the school buildings (density)
- Potential selection bias - districts who chose to / are able to participate and share data may be related to ability / inability to adopt mitigation strategies
- **MA Pooled Testing Pilot will prospectively and broadly measure Covid-19 in schools that have a shared set of mitigation strategies and policies**

Pooled Testing Strategy

Individual is <u>symptomatic</u>

Individual Tested, case identified

Positive Case **does not** attend in-person school

Symptomatic spread (family, community)

Pre / Asymptomatic spread (family, community)

Contact Tracing & Quarantine

Pooled Testing does not impact current testing of symptomatic individuals and their close contacts - continues to limit transmission

Pooled testing helps to limit <u>community spread</u> by breaking chains of transmission

Individual is <u>Pre or Asymptomatic</u>

Pool tests positive

Retest to find positive individuals

Symptomatic spread (family, community)

Pre / Asymptomatic spread (family, community)

Contact Tracing & Quarantine

Positive Case **does not** attend in-person school

Symptomatic spread (family, community)

Pre / Asymptomatic spread (family, community)

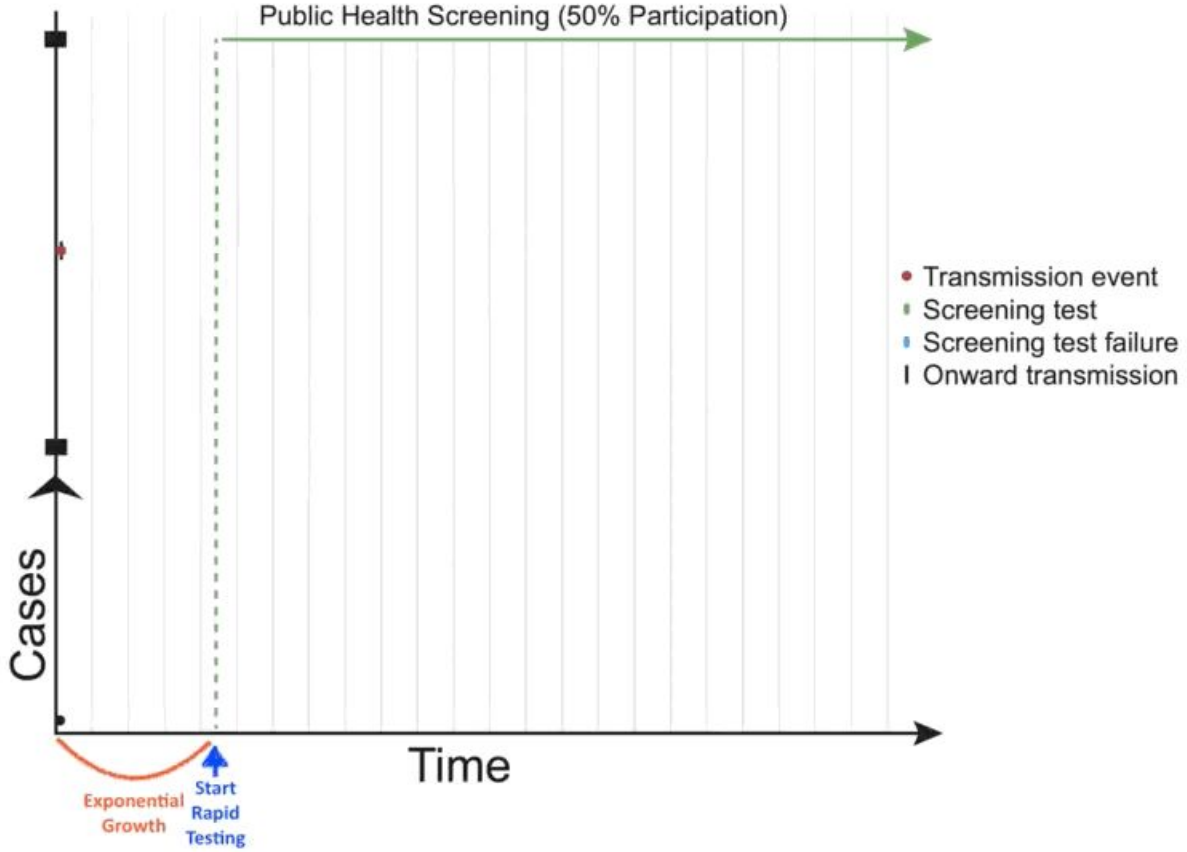
Contact Tracing & Quarantine

Symptomatic spread (family, community)

Pre / Asymptomatic spread (family, community)

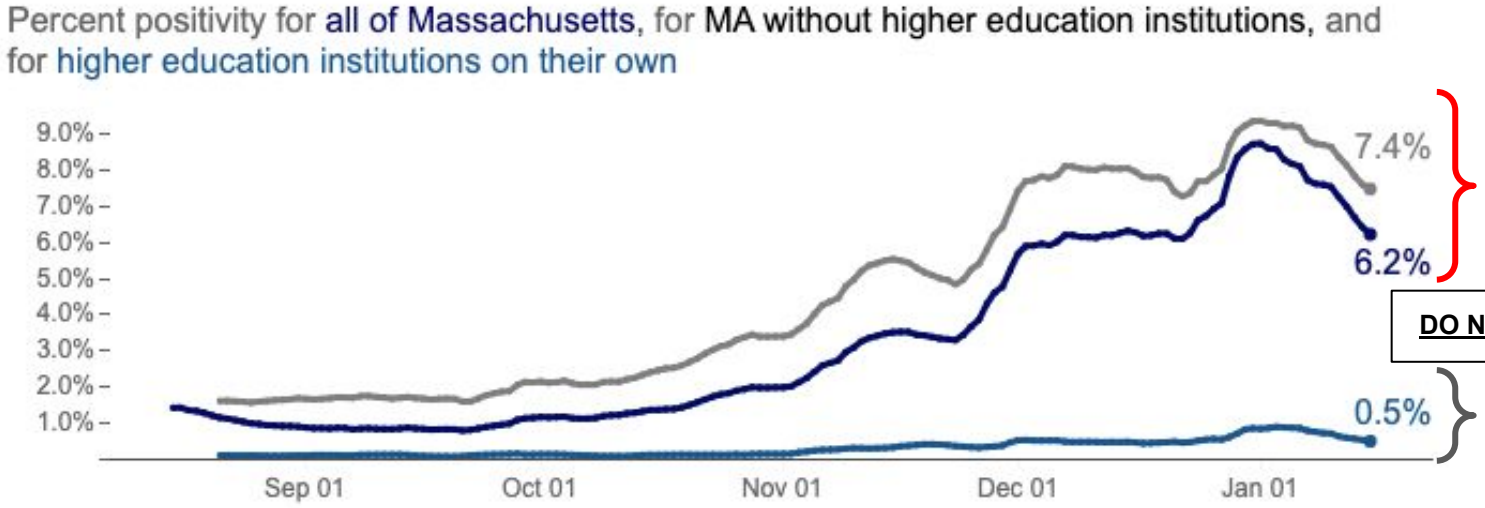
Symptomatic spread (family, community)

Pre / Asymptomatic spread (family, community)


Public Health Screening (50% Participation)
Transmission event
Screening test
Screening test failure
Onward transmission
Cases
Time
Exponential Growth
Start Rapid Testing

Test Positivity - who, why, and how often people are tested impacts interpretation and usefulness

Test positivity = Number of positive tests divided by number of tests conducted (Includes multiple tests. Note: this is NOT a prevalence estimate).
**WHO is tested, WHY they are tested, and HOW OFTEN they are tested impacts interpretation



Symptomatic / Close Contact Testing
Testing people with **symptoms or known exposure** will result in higher test positivity

DO NOT DIRECTLY COMPARE!

Higher Ed Testing
Routine testing of college students/staff **regardless** of symptoms or exposure status

Boston College Testing Experience

- Started with Entry Testing when students arrived on campus, followed by Symptomatic Testing
- Outbreak began the week of 9/7/20 (73 cases out of 2972 tests, test positivity 2.46%)
- State and City officials requested they **increase testing capacity**, transfer contact tracing to city officials for off campus students
- Changed testing to Surveillance Testing for the remainder of the semester (test positivity <1%)
- When positive cases found, cases isolated and contact tracing conducted

Week	Total Tests	Total Positive	Test Positivity
8/16/20	7681	3	0.04%
8/24/20	10127	8	0.08%
8/31/20	4322	26	0.60%
9/7/20	2972	73	2.46%
9/14/20	4639	17	0.37%
9/21/20	8359	41	0.49%
9/28/20	7040	13	0.18%
10/5/20	7190	12	0.17%
10/12/20	9760	25	0.26%
10/19/20	8420	15	0.18%
10/26/20	8719	18	0.21%
11/2/20	9268	14	0.15%
11/9/20	9704	25	0.26%
11/16/20	11225	67	0.60%

Benefits of Pooled Testing

- **Littleton Public Schools**
  - Reduce spread by identifying cases early
  - Pooled testing results available in more quickly than the current, but less targeted/meaningful health metrics (State and town level)
  - Direct measure what is or is not happening under current hybrid model
  - Focus mitigation efforts should there be a cluster
  - Baseline data may help to inform future data driven decisions regarding in-person instruction or if mitigation strategies are changed

- **Town of Littleton**
  - Given household transmission, testing in schools can identify positive family units early, helping to break chains of transmission for the entire community