

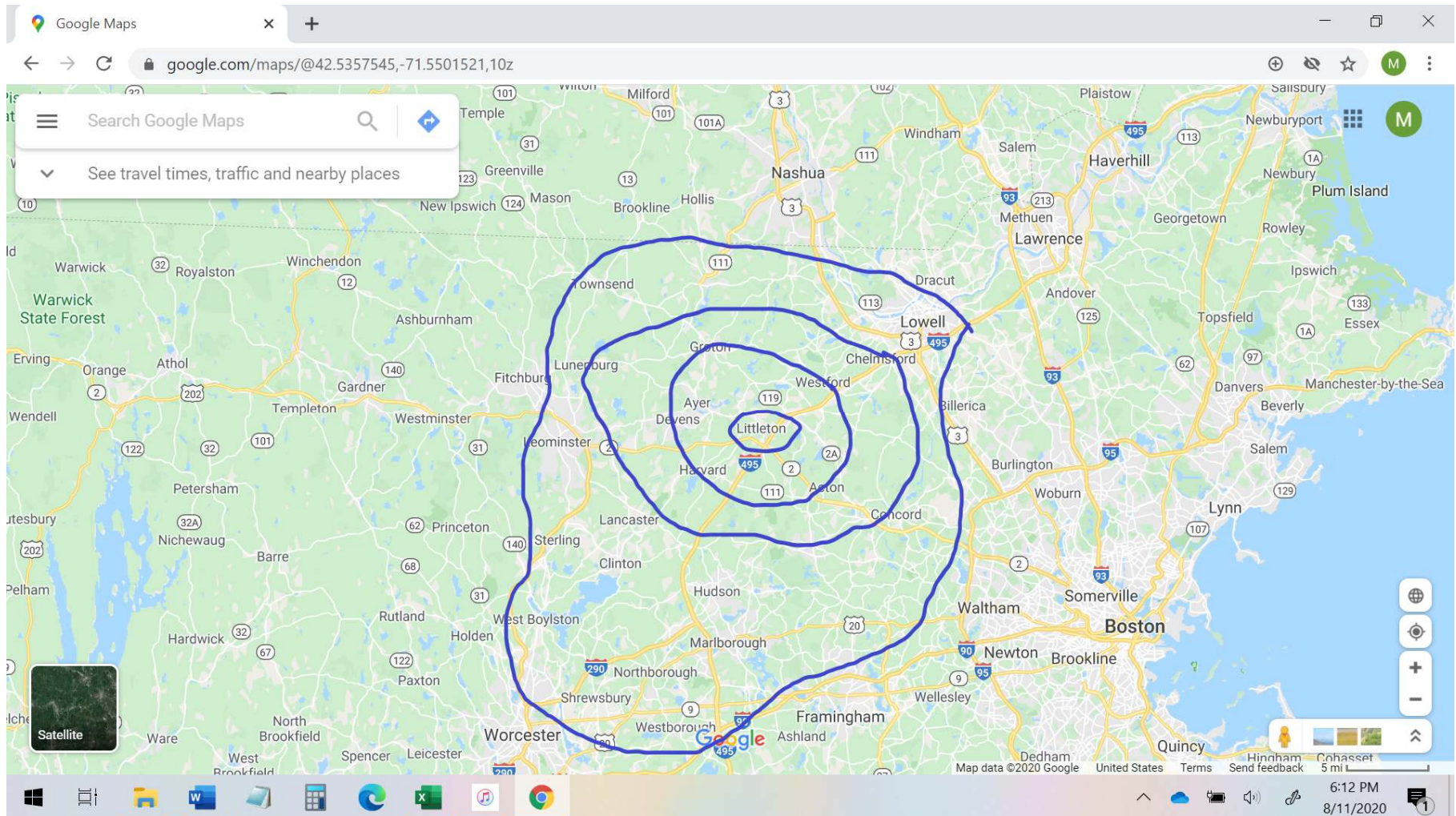
Covid-19 Health Metrics

Littleton and Surrounding
Communities

Town Groupings Evaluated

- **Littleton**
- **Border Communities**
 - Littleton, plus Acton, Ayer, Boxborough, Groton, Harvard, and Westford
- **Contiguous Communities**
 - Border Communities, plus Bolton, Carlisle, Chelmsford, Concord, Dunstable, Lancaster, Lunenburg, Maynard, Pepperell, Shirley, Stow
- **495 Belt**
 - Contiguous Communities, plus Ashby, Bedford, Berlin, Boylston, Clinton, Hudson, Leominster, Lincoln, Lowell, Marlborough, Northborough, Shrewsbury, Southborough, Sterling, Sudbury, Townsend, Tyngsboro, Wayland, West Boylston, Westborough, Weston
- **Middlesex County**
- **Commonwealth of Massachusetts**

Town Groupings Evaluated



Average Daily Cases

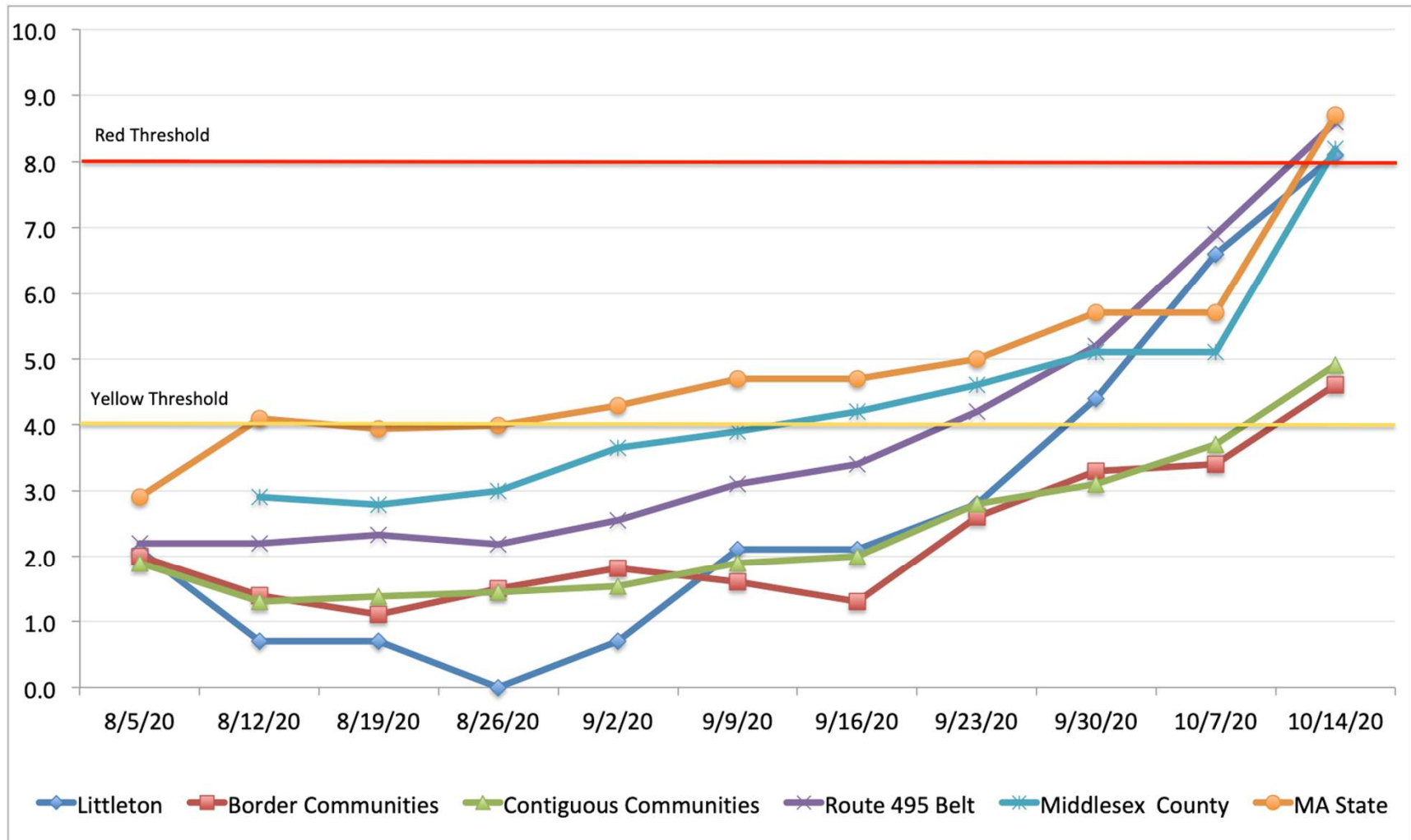
- Data sources:
 - Weekly COVID-19 Public Health Report:
<https://www.mass.gov/info-details/covid-19-response-reporting>
 - Where <5 cases, used rate of average daily cases per 100k population reported by DPH to estimate number of cases in that town
 - Population data from UMass Donahue Institute (2019)
- Calculation
 - $((\text{number of cases diagnosed in last 14 days} / 14 \text{ days}) / \text{population}) * 100,000$

Average Daily Cases

	Average Daily Cases per 100,000 (past 14 days)	Trend (2 weeks)	DESE Threshold
Littleton	8.1	Higher (+3.7)	Red
Border Communities	4.6	Higher (+1.3)	Yellow
Continuous Communities	4.9	Higher (+1.8)	Yellow
Route 495 Community Belt	8.6	Higher (+3.4)	Red
Middlesex County	8.2	Higher (+3.1)	Red
MA State	8.7	Higher (+3.0)	Red

Data from October 14, 2020 MA weekly DPH report

Trend: Average Daily Cases per 100,000



Test Positivity

- Data sources:
 - Weekly COVID-19 Public Health Report:
<https://www.mass.gov/info-details/covid-19-response-reporting>
 - Population data from UMass Donahue Institute (2019)
- Calculations
 - % Positive Tests = (Number positive tests / Total tests)
 - This includes people who are tested more than 1 time, such as surveillance testing for colleges, healthcare workers, and businesses
- Compare to <3% positive test for suppression, as recommended by Harvard Global Health Institute¹
 - Recommend <1% for maintenance

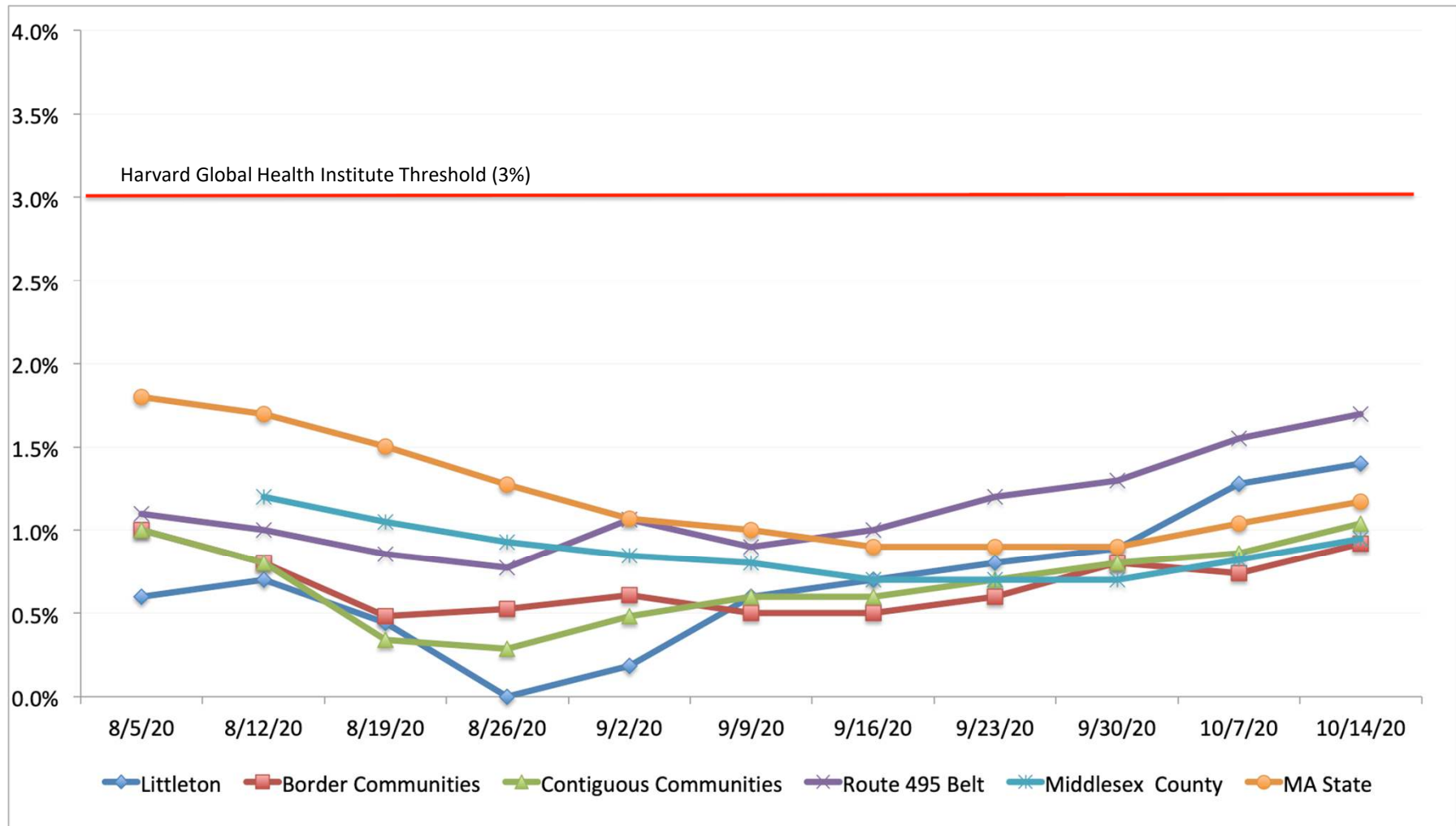
¹https://globalepidemics.org/wp-content/uploads/2020/06/key_metrics_and_indicators_v4.pdf

Percent Positivity

	Total Molecular Tests (last 14 days)	Percent Positivity	Trend (2 weeks)	3% Positivity Threshold
Littleton	784	1.44%	Higher (+0.51%)	<3%
Border Communities	6,770	0.92%	Stable (+0.16%)	<3%
Continuous Communities	16,080	1.04%	Higher (+0.26%)	<3%
Route 495 Community Belt	52,525	1.70%	Higher (+0.45%)	<3%
Middlesex County	229,676	0.95%	Higher (+0.27%)	<3%
MA State	865,003	1.17%	Higher (+0.30%)	<3%

Data from October 14, 2020 MA weekly DPH report

Trend: Test Positivity



Health Metrics Summary

- Data as of October 14, 2020 report
- Average Daily Case Rates for our local area range from 4.6 to 8.1 per 100k
 - Littleton is **red**
 - 11 cases in the last 14 days
 - Average daily cases per 100k population = 8.1
 - Percent testing positivity in last 14 days = 1.40%
 - Rates and test positivity continue to trend higher
 - Border and Surrounding Communities are **yellow**
 - Rates (4.6 – 4.9) and testing (0.92 – 1.04%) are trending higher
- 495 Belt is **red**
 - Rates (8.6) and test positivity (1.70%) are trending higher
- Middlesex County is **red**
 - Rates (8.2) and test positivity (0.95%) are trending higher
- MA State is **red**
 - Rates (8.7) and test positivity (1.17%) are trending higher

Heath Metrics Summary

- **How do we know if we need to suspend in-person learning for our school or district?**

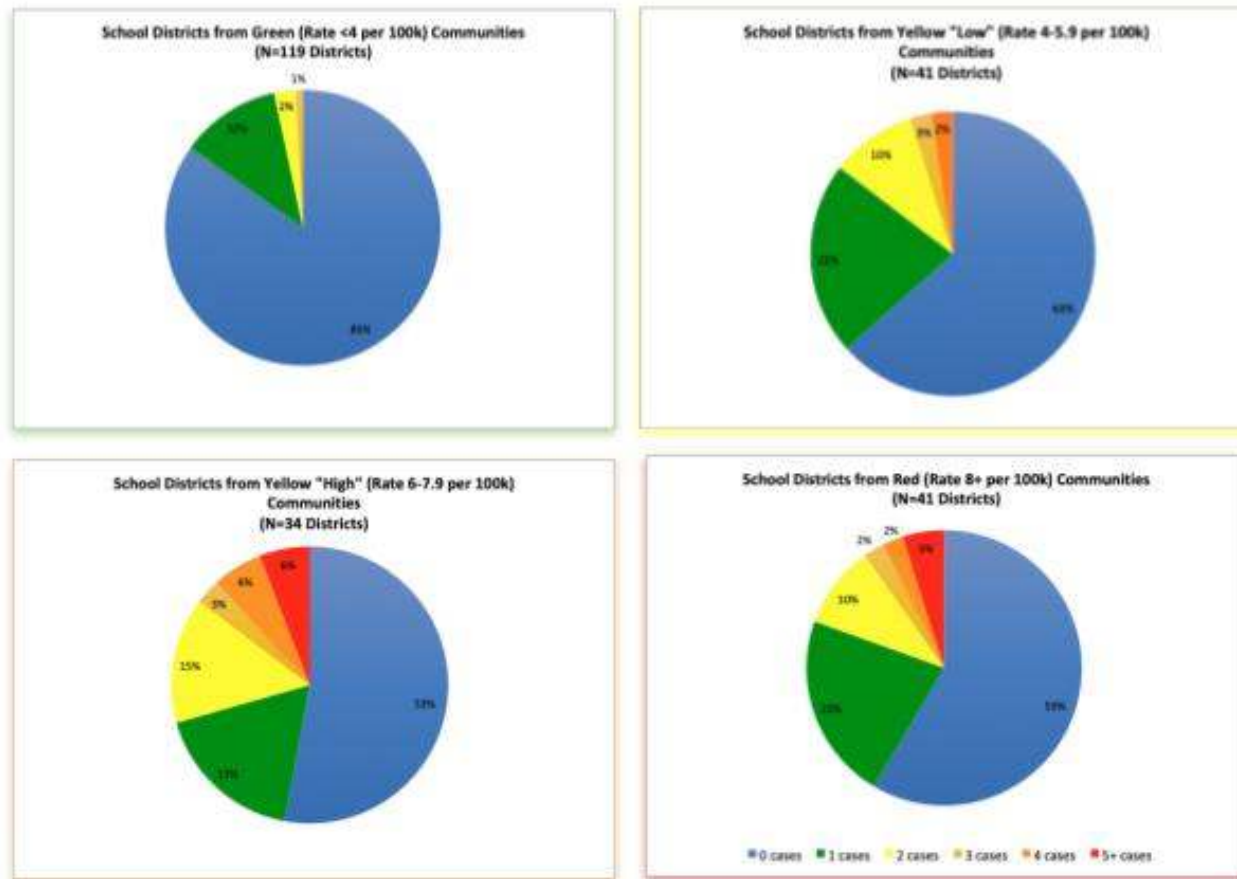
There is no one threshold or metric that indicates a school or district should suspend in-person learning.

It is important to note that these decisions need to be made based on local context, occur in collaboration with DESE and the local board of health, and may be based on the following factors:

- If the school is in a district reported as “red” on the DPH health metric for the past three weeks, and risk of transmission to students and/or staff is increased
- If test results, suggest widespread transmission is occurring
- If there are widespread absences among students and staff due to illness
- The school department and the local board of health may have other local factors that are important to consider when making this decision.

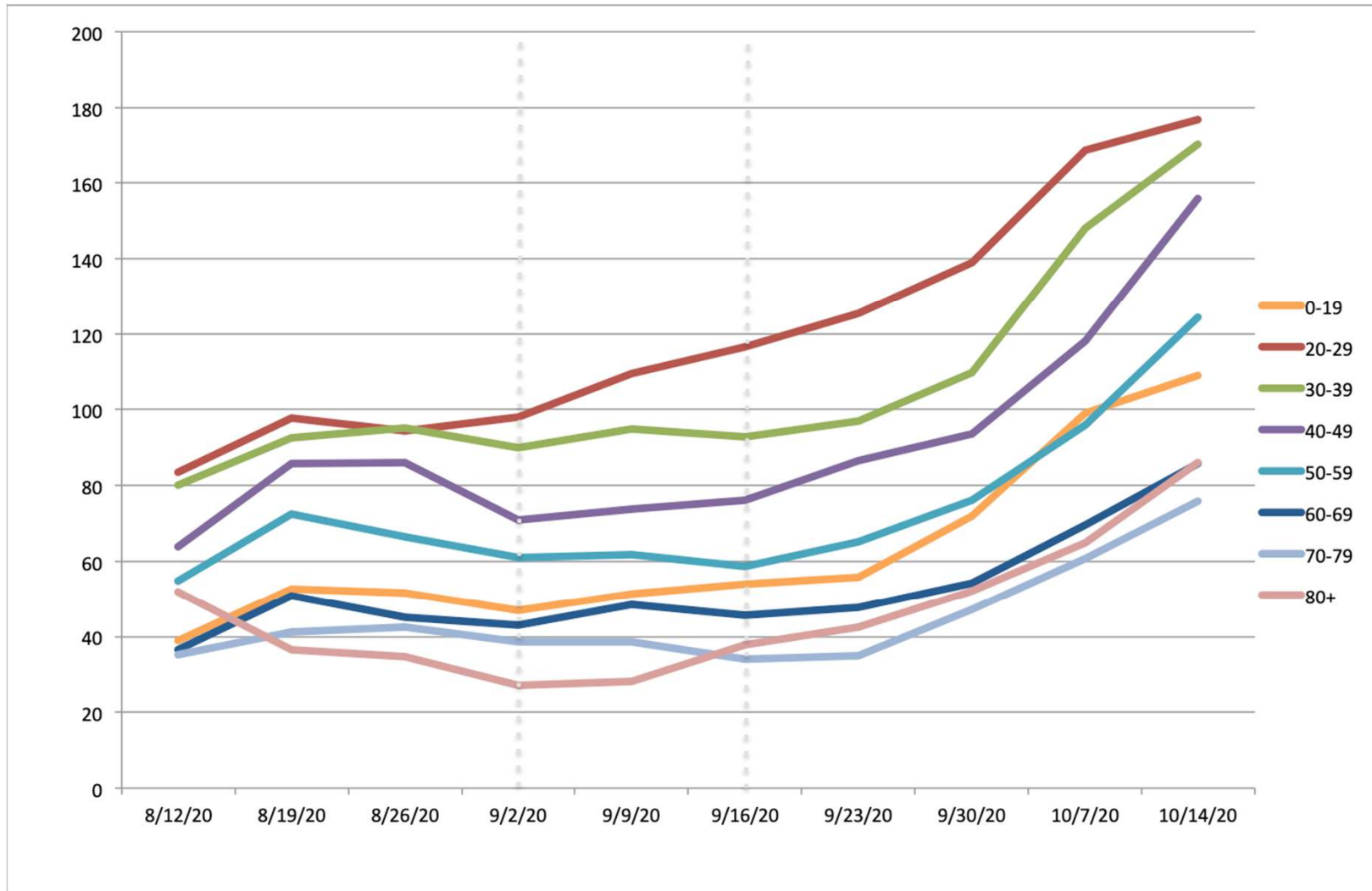
Cases in schools reflect rates of community transmission

MA School Districts Reporting Covid-19 Cases (10/1-10/7)* by Community Risk Level**



Data Sources: *<http://www.doe.mass.edu/covid19/positive-cases/> **<https://www.mass.gov/doc/weekly-covid-19-public-health-report-october-7-2020/download>
 Not Shown: Schools where Community Risk Level is unknown (e.g. multi-town districts, charter, tech) (N=165)

Case Rate By Age: Rate per 100k for Two Weeks

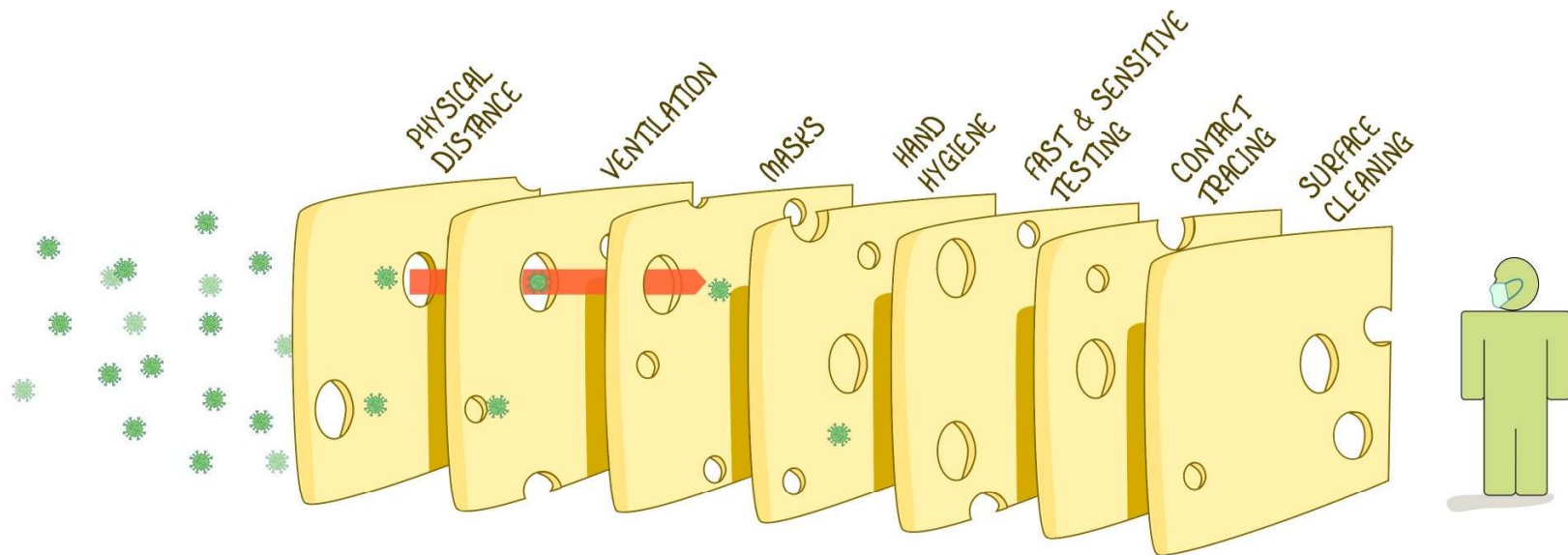


Case Rate by Age Group

- Rates are trending higher in **all** age groups
 - Highest for 20-29, 30-39, 40-49, 50-59
 - 0-19 age bracket is wide and likely hides differences within that group
- Rising trends related to increased mobility and mixing following opening of colleges, schools, and relaxation of State reopening guidelines
- These age group trends are consistent with current State contact tracing data suggesting transmission is occurring at:
 - unmasked social gatherings
 - pre/asymptomatic household spread

THE SWISS CHEESE RESPIRATORY VIRUS DEFENCE

RECOGNISING THAT NO SINGLE INTERVENTION IS PERFECT AT PREVENTING SPREAD



EACH INTERVENTION (LAYER) HAS IMPERFECTIONS (HOLES).
MULTIPLE LAYERS IMPROVE SUCCESS.

IAN M MACKAY
VIROLOGYDOWNUNDER.COM
DERIVED FROM @SKETCHPLANATOR
BASED ON THE SWISS CHEESE MODEL OF ACCIDENT CAUSATION, BY JAMES T REASON, 1990
VERSION 1.3
UPDATE: 12OCT2020

Important to use as many of these layers of protection as possible, even at home

- Wear a mask when with friends/family outside your household
- Meet outside
- Avoid large groups