Public Schools of Brookline
Advisory Panel 4
(Public Health, Safety, Operations)

Presentation to:
Dr. Swannie Jett, Director of Health and Human Services, Town of Brookline
Brookline Advisory Council on Public Health

August 17, 2020

Topics We Plan to Cover

1. Background on our panel
2. Our ongoing review of evidence: novel coronavirus transmission risk in schools and school-age populations
3. Enhanced clean air ventilation of occupied indoor spaces as an extra layer of defense
4. The role of increased access to rapid-turnaround diagnostic testing

Evidence Review: Key Findings

- Nearly universal finding that rates of serious illness by age are lowest among children, particularly school-age
- Population-based screening studies indicate that children are less likely to become infected in the first place; these studies include asymptomatic testing and have been conducted in settings when schools were still open
- School-based transmission of known COVID cases is rare, with most published contact tracing studies showing rates of secondary transmission below 1-2%.
- Risks of teacher/staff infection in countries that did not close schools were similar or lower than population average

European Union CDC 15-Nation Report
August 2020

- "The conclusion from these investigations is that child-to-child **transmission in schools is uncommon** and not the primary cause of SARS-CoV-2 infection of children whose infection onset coincides with the period during which they are attending school."
- "In summary, where COVID-19 in children was detected and contacts followed-up, no adult contacts in the school setting have been detected as SARS-CoV-2 positive during the follow-up period. The conclusion from these investigations is that **children are not the primary drivers of SARS-CoV-2 transmission to adults in the school setting**."

Caveats & Context

- New studies are coming out constantly, and we are updating this document at least once weekly
- Lower risk isn't zero risk. Without safeguards, children can certainly transmit infection – e.g. Georgia Camp outbreak.
- But school closures also do not mean zero risk.
  - Closed schools shift adult and child interactions to other settings; it doesn't stop them.
  - Studies also show harmful health implications of school closures, including educational losses, mental illness, food insecurity, and unreported child neglect, with disparate impacts
- Finally – risks for schools need to be interpreted in context of other decisions communities are making.

In pandemic recovery, New York has had more success than Mass. What explains the gap?

By Dasia Moore and Kay Lazar Globe Staff,
Updated August 16, 2020, 7:41 p.m.

Experts also pointed to one significant difference in the two reopening plans: New York City still does not allow indoor dining, whereas Boston chose to allow inside eating as of June 22, when Massachusetts gave the green light for eateries statewide.

Indoor dining has been linked to 10 percent of new infections in other states, said Shan Soe-Lin, managing director of Pharos Global Health Advisors, a Boston nonprofit focused on global health matters. Disease experts in the state have also pointed to indoor dining as an area of concern, with some calling for a rollback of reopening.

Community Benchmarks for Reopening

- Our panel's unanimous recommendation, with additional input from 5 national experts on pandemic response
- Indoor in-person schooling – with all other safeguards in place (6 foot distancing, universal masking, cohorting, hand hygiene, building safety, etc.) – **as long as at least 3 of 4 criteria are met**:
  1. 14-day average Brookline positive test rate < 5% (WHO and AFT endorsed criterion)
  2. 14-day average Massachusetts positive test rate < 5%
  3. 14-day daily new case average in Brookline < 10.0 per 100,000 (Harvard Global Health Institute guideline)
  4. 14-day daily new case average in MA < 10.0 per 100,000

Thank you

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Enhanced Clean Air Ventilation

- Working with the **Harvard-Chan School of Public Health's Healthy Buildings Team**, Advisory Panel 4 is helping PSB to use "air cover" as a further line of defense against indoor transmission

Enhanced Clean Air Ventilation

- **Goal for all occupied indoor spaces = ≥ 5.0 air changes per hour (ACH)**
  - Fresh outdoor air through HVAC systems and open windows, plus recirculated air filtered at MERV 13 or higher (including portable, HEPA-filtered air cleaners)
  - Approximately 2x the current building code and industry standard for schools in terms of fresh air ventilation levels
  - As with distancing, **this is a sliding scale of risk reduction, not a bright-line cutoff**
- **Also verifying bathroom exhaust fan performance and running fans continuously** during building occupancy

Harvard-Chan Healthy Buildings Team's Ratings

Sources: https://docs.google.com/spreadsheets/d/1NEhk1IEdbEi_b3wa6gI_zNs8uBJjlSS-86d4b7bW098/edit#gid=1836861232 ; https://schools.forhealth.org/

Enhanced Clean Air Ventilation

The Mass. Teachers Assoc. is recommending this ventilation target

Room Size (assuming 9 ft. ceilings)	Approx. Max. Occupancy at 6-ft. Distancing*	ACH Per Current Mass. State Building Code for Classrooms**	ACH at 20 CFM/ Occupant with Approx. Max. Occupancy at 6-ft. Distancing	Enhanced ACH Target at Harvard HBT's "Good" Level	Enhanced ACH Target at Harvard HBT's "Excellent" Level
750 sq. ft.	15	2.5 – 3.1	2.7	4.0	5.0
1,000 sq. ft.	20	2.5 – 3.1	2.7	4.0	5.0

Key takeaway: *PSB is targeting clean air ventilation at 129% - 200% of current building code requirements, as an additional defensive measure, in order to quickly dilute and remove any airborne virus particles*

*Source: https://www.cannondesign.com/massachusetts-capacity-dashboard/

**Sources: https://www.mass.gov/doc/780-cmr-ninth-edition-preamble/download ; https://codes.iccsafe.org/content/IMC2015/chapter-4-ventilation#IMC2015_Ch04_Sec403.3

COVID-19 Testing for School Reopening

Presentation to the Brookline Advisory Council on Public Health

Nira Pollock, MD, PhD

Associate Medical Director, Infectious Diseases Diagnostic Laboratory, Boston Children's Hospital

Division of Infectious Diseases, Beth Israel Deaconess Medical Center

Associate Professor of Pathology and Medicine, Harvard Medical School

8-17-20

Why test school kids and staff for COVID-19?

- Identify individuals with COVID-19→isolate/quarantine to avoid transmission
- Exclude COVID-19 in symptomatic individual → earlier return to school
  - Major potential impact on the teaching workforce
- Monitoring number of cases to guide schooling decisions about modifications to procedures, closures of classrooms, etc.
- Testing will have highest impact if results can be generated and used quickly

Arguments for a centralized COVID testing strategy for Brookline

- Access to expedited COVID-19 testing for all symptomatic school children and staff will allow for real-time assessment of risk and facilitate rapid response to reduce transmission **and keep schools open**
- Currently, many Brookline school children and staff do NOT have access to COVID-19 testing with rapid turnaround time (≤24h)
- COVID-19 testing in MA relies upon a network of independent testing centers with varied capacity, limited comfort with children, and range of results turnaround time (from ≤24h to 7D).

Background:

- Reference test method: molecular testing (rRT-PCR) to detect SARS-CoV-2, performed under FDA EUA[1]
- Test turn-around time (TAT)
  - **Must include time for sample collection, transport, testing, and results return**
- Sample type: Nasopharyngeal (NP) flocked swab still preferred by FDA, but anterior nasal (AN) swab is accepted alternative (and CDC has no preference)[2,3]
  - **AN swab can be self-collected by adult/easily collected by clinician**; NP swab requires trained professional[2,3] and many sites are not comfortable testing children
  - Both swab types have high sensitivity in newly symptomatic COVID (high viral load)
  - Many serial testing programs planning to use AN swab

1) https://www.fda.gov/medical-devices/emergency-situations-medical-devices/emergency-use-authorizations#covid19ivd
(2) https://www.fda.gov/medical-devices/emergency-situations-medical-devices/faqs-testing-sars-cov-2#whatif
(3) https://www.cdc.gov/coronavirus/2019-nCoV/lab/guidelines-clinical-specimens.html

Status quo: each individual gets tested in system of choice

e.g. School child or staff in Brookline with symptoms consistent with COVID-19:

→calls PCP or local testing site

→scheduled for testing (0-1D)

→sample obtained

→testing results return to MA DPH/*Local HD (MAVEN) + ordering provider (**1-7D**)

→For Brookline residents with positive results, Brookline HD initiates contact tracing, including notification of school nurse and individual (0-1D)

→For non-Brookline residents, local HD manages positive result (??D)

→Provider returns results to individual (0-1D)→ individual can choose to notify HD/school (1-2D)

*Brookline HD only follows results for Brookline residents, and is focused on POSITIVE results

Status quo (continued)

- The Brookline HD→school notification process already appears to be fast, BUT:
  - Other jurisdictions have their own processes
  - Not all teachers/families have PCPs
  - Could provide list of walk-in testing centers, but similar time constraints apply
  - Positive results for teachers and students who live outside of Brookline will go to their hometown DH (and PCP)
  - Negative results (for return to school) will have to be reported to school nurse by individuals
- Time from symptoms to actionable results available to school could be **2-11D**→delays in notification, quarantine, and decision-making about return to school

Is an expedited COVID-19 testing program essential for Brookline schools to reopen?

From a pure health and safety perspective, we think NO.

- Symptomatic kids/staff should be staying home until COVID-neg status is confirmed.
- In-school safety strategies (masks, distancing, hygiene, enhanced ventilation) will reduce risks of transmission from asymptomatic individuals.
- Other Brookline settings (e.g. camps, dining, retail) have opened without rapid TAT testing, and schools elsewhere are doing so.
- Rapid TAT testing would be a very useful tool, but its absence does not render a school return unsafe.

From an ongoing operational perspective, we think YES.

- Unless/until COVID-neg status is confirmed, kids/staff with any potential COVID symptoms must isolate—up to 14 days from onset.
- Many triggering symptoms are extremely common (fever, cough, etc.)→ many COVID-neg individuals likely to be isolating for long periods of time unnecessarily.
- Particularly during cold/flu season, cascading staff/student isolation periods → big operational challenges to keep schools open.
- If we do have any cases, rapid TAT testing will expedite contact tracing/testing efforts.

Testing delays will impact in-person school/disrupt workforce

Event	Location of Event	Testing Result	Quarantine
Individual is symptomatic	If an individual is symptomatic at home, they should stay home and get tested. If an individual student is symptomatic on the bus or at school, they should remain masked and adhere to strict physical distancing. Students will then be met by the nurse and stay in the medical waiting room until they can go home. They should not be sent home on the bus. If an individual staff member is symptomatic at school, they should find coverage for their duties and then go home and get tested.	Individual tests **negative**	Return to school once asymptomatic for 24 hours
		Individual tests **positive**	Remain home (except to get medical care), monitor symptoms, notify the school, notify personal close contacts, assist the school in contact tracing efforts, and answer the call from local board of health or MA Community Tracing Collaborative. Most people who have relatively mild illness will need to stay in self- isolation for at least 10 days **and** until at least 3 days have passed with no fever and improvement in other symptoms.
		Individual **is not tested**	Remain home in self-isolation for 14 days from symptom onset

DESE guidelines, 7-17-20, p. 6

Numbers of symptomatic individuals requiring testing are expected to increase during flu season (cold and flu symptoms overlap with COVID symptoms)

Serial testing of asymptomatic individuals: pros and cons

- **Goal: capture new asymptomatic cases**
- **Frequency: weekly** (testing less frequently could miss new infections and interim spread)
- **Volume:** LARGE
- *Insurance will likely NOT cover asymptomatic screening testing
- Pooling not yet available, but likely coming soon

Testing all students/staff serially will be expensive.

Testing staff (only) serially could be considered, <u>especially to reduce anxiety</u>

Would be important to avoid false sense of security; would still need to maintain infection control (masks, distancing, etc.)

Funds spent on this level of testing could be spent on infection control measures (note that healthcare workers are not currently being serially tested in this way, but <u>some university students/staff and employees are</u>.)

Safer Teachers, Safer Students Consortium

- **Wellesley, Revere, Chelsea, Somerville, Brookline**
- Proposal to utilize a shared operations partner to coordinate centralized testing sites (CTS) within each district with the same infrastructure; AN swabs to be used
  - Mascon/One Medical
  - Broad Laboratory
- First priority: symptomatic students and staff; second priority; weekly serial testing of student-facing staff
- Results returned rapidly both to patient AND to District DH
  - →school nurse, to allow quarantine plan implementation/decision about return to school
- CTS ideally would bill insurance; need consistent ordering provider
- Would need to route <u>non-resident</u> teacher/student results to District DH, to expedite
- Consortium hoping to collaborate to raise funds
  - Wellesley group already seeking local donations
- Goal: feasibility pilot to pave the way for other districts throughout MA
- **PSB School Committee and Superintendent on board with concept**
- **Need leadership from Brookline Select Board, Town Meeting, and Department of Health to allow Brookline to participate**
- >15 other districts have already contacted organizers hoping to join consortium….

Summary

- Access to diagnostic testing for COVID-19 with rapid TAT (≤24h) is a key component of a multi-pronged strategy to allow as many children and staff as possible to attend school in person
  - Coordinated school-specific testing will allow us to monitor our community and react quickly in the event of any cases, maintaining the effective COVID-19 response to date in Brookline
  - Expedited testing will avoid workforce and learning disruptions
- Panel 4 does not think that a rapid TAT testing program is an absolute public health/safety prerequisite to in-person school
  - Purpose of multiple planned safety measures is to prevent in-school transmission
  - Symptomatic children/staff should not be in school
  - Summer programs in Brookline are open without it
- Unused testing capacity currently exists in MA
- Brookline is well-situated to coordinate operations and information sharing in order to successfully provide access to testing for the community, maintaining low positivity rates and safe school/work environments
- Goal should be to bill as much testing as possible to insurance payers, greatly limiting cost to the town
- Without an effective plan for expeditious detection of COVID-19 in schools, teachers may be less willing to return to the classroom

Questions and Discussion

Thank you for inviting us!

Advisory Panel 4 Members

Name	Professional Role/Affiliation
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Community Benchmarks for Reopening