Letter From External Scientific Advisors October 29th 2020

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In our roles as external scientific advisors, we are writing to provide our updated assessment on the school safety plans.

When the original guidelines were approved, we agreed to re-evaluate the metrics in October and to update them based on new information. Our recommendations were based on the data available over this summer. New evidence has emerged about the low frequency of transmission of SARS-CoV-2 in schools, more detailed data sources are now available, and the district has initiated surveillance testing of teachers and staff. As a result, we recommend updated metrics that more accurately reflect this new information and focus more specifically on virus prevalence in Cambridge.

Summary of new evidence

We now have much more substantial data about the risks of SARS-CoV-2 transmission from in-person schooling than we did over the summer. From the experience of school reopenings in US and internationally, we now know that transmission of SARS-CoV-2 is uncommon in schools that use mitigation strategies,[1,2] and that young children are less susceptible to the virus.[3] Although there are well-known cases of school-based spread, they occurred in crowded classrooms where the students were not wearing masks (Israel, Georgia, Utah). We also have new evidence about the effectiveness of universal face-masking in controlling the spread.[4,5]

Moreover, we now have specific evidence from Cambridge Public Schools' limited reopening. Recommended safety measures have been effectively incorporated by CPSD (masking of students, teachers and staff, ventilation remediation and monitoring, surveillance testing, hand hygiene).

Importantly, surveillance testing of teachers and staff has been successfully introduced. Over 1300 tests of teachers and staff have been performed, with very few positives. These positives were not traced to in school transmission and the Cambridge Department of Public Health immediately provided guidance to those involved. Surveillance testing provides a vital layer of protection that was not in place when metrics were set in August. It assesses virus prevalence among teachers and staff, including those that reside outside of Cambridge (where levels may be different).

Finally, we are comforted by the high testing availability in our community, and the fact that waste water metrics that provide a separate assessment of virus prevalence, will soon be published for Cambridge. **We therefore recommend updating the metrics to reflect transmission in Cambridge specifically.**

Recommended updated metrics

Metric 1: Daily reported incidence. Fewer than 25 new cases per day per 100,000 people *in Cambridge* (7-day average)

Metric 2: Test positivity. Less than 5% of COVID-19 tests are positive *in Cambridge* (7-day average)

Metric 3: Wastewater Monitoring. COVID-19 detected at < 100 copies of viral genomes/ML from Deer Island/MWRA (discuss switch after 7-day averages of Cambridge data are available)

If two metrics exceed the threshold, CPSD switches to full remote learning (same as with prior metrics).

Rationale: The shift from wider geographic area to Cambridge-specific metric is justified by the availability of surveillance testing for teachers and staff.

Additional Recommendations:

- Surveillance testing offered to older students when prevalence is high.

  Rationale: Universities with surveillance testing have been able to effectively control the spread of the virus.

- In the event of a closure of in-person education due to these metrics being exceeded, schools would remain closed for at least 1 week. In-person education should resume when either one or no metrics are exceeded for 7 consecutive days.

  Rationale: In person learning can resume when reduced prevalence indicates that it is safe.

We are proud that Cambridge is using evidence-based metrics to guide its decisions, and that our city has been responsive to the latest scientific developments. We propose to reevaluate these metrics again in January in the context of new scientific developments, community health updates and new guidance from the district.

References

1. Macartney, Kristine, Helen E Quinn, Alexis J Pillsbury, Archana Koirala, Lucy Deng, Noni Winkler, Anthea L Katelaris, et al. 2020. “Transmission of SARS-CoV-2 in Australian Educational Settings: A Prospective Cohort Study.” *The Lancet Child & Adolescent Health* 4 (11): 807–16. https://doi.org/10.1016/S2352-4642(20)30251-0.
2. Ehrhardt, J., A. Ekinci, H. Krehl, M. Meincke, I. Finci, J. Klein, B. Geisel, C. Wagner-Wiening, M. Eichner, and S. O. Brockmann. 2020. “Transmission of SARS-CoV-2 in Children Aged 0 to 19 Years in Childcare Facilities and Schools after Their Reopening in May 2020, Baden-Württemberg, Germany.” *Eurosurveillance* 25 (36): 2001587. https://doi.org/10.2807/1560-7917.ES.2020.25.36.2001587.
3. Viner RM, Mytton OT, Bonell C, et al. Susceptibility to SARS-CoV-2 Infection Among Children and Adolescents Compared With Adults: A Systematic Review and Meta-analysis. *JAMA Pediatr.* Published online September 25, 2020. doi:10.1001/jamapediatrics.2020.4573
4. Gandhi, Monica, Chris Beyrer, and Eric Goosby. 2020. “Masks Do More Than Protect Others During COVID-19: Reducing the Inoculum of SARS-CoV-2 to Protect the Wearer.” *Journal of General Internal Medicine* 35 (10): 3063–66. https://doi.org/10.1007/s11606-020-06067-8.
5. Reiner, Robert C., Ryan M. Barber, James K. Collins, Peng Zheng, Christopher Adolph, James Albright, Catherine M. Antony, et al. 2020. “Modeling COVID-19 Scenarios for the United States.” *Nature Medicine*, October, 1–12. https://doi.org/10.1038/s41591-020-1132-9.