Cambridge
Public Health
Department

Cambridge COVID-19 Expert Advisory Panel
2 pm, Wednesday, May 26, 2021

Meeting convened at 2:02 pm

ATTENDEES:

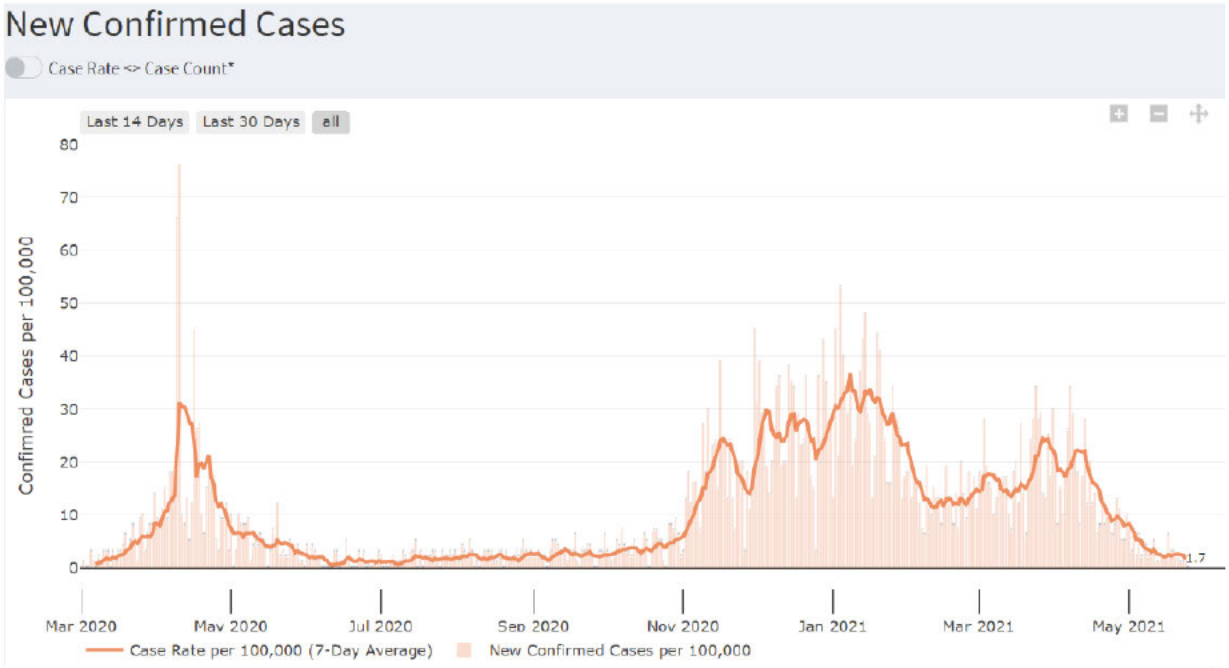
Panel members
Bill Hanage
Jill Crittenden
Louann Bruno-Murtha
Chris Kreis
Gilberto Russo

Panel guests
Mariana Matus, *Biobot* co-founder
Scott Olesen, *Biobot* epidemiologist

CPHD/City staff
Claude Jacob
Sam Lipson
Nancy Rihan-Porter
Sammi Chung
Lee Gianetti
Dan Riviello

1) Clinical, case, vaccination, testing and wastewater data updates

Cambridge Daily New Cases 5/24/2021



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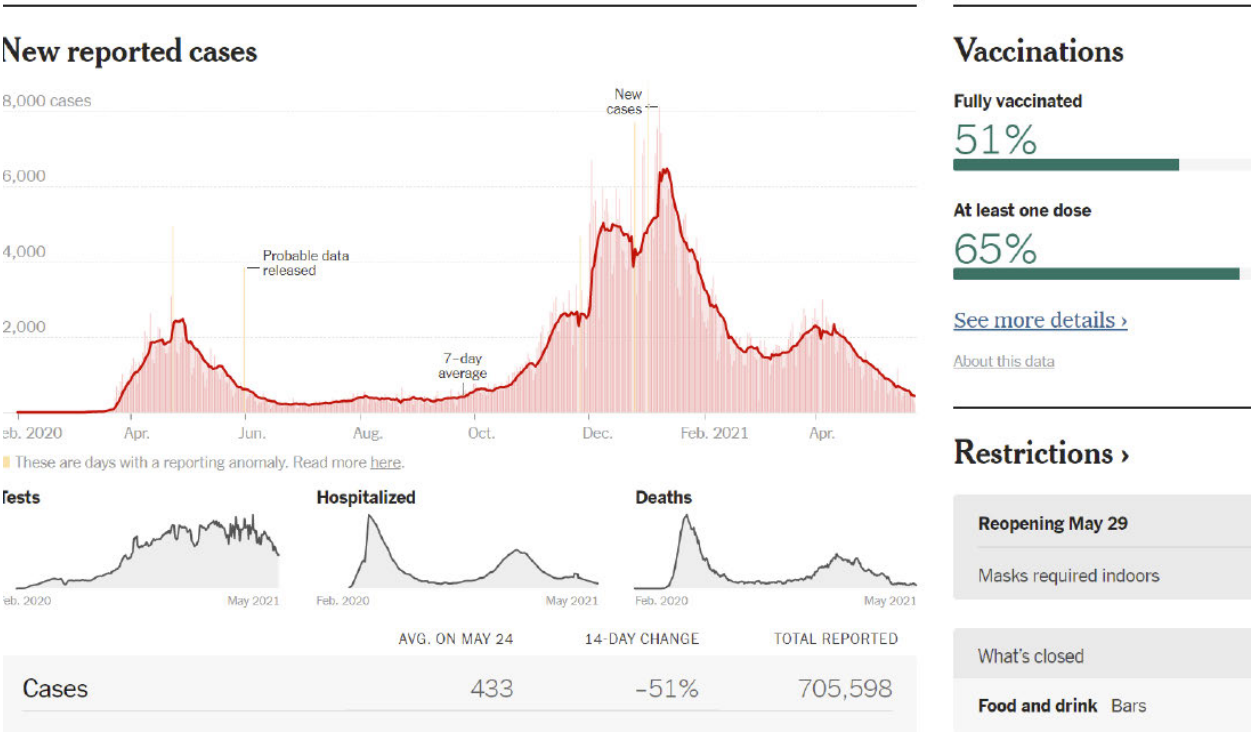
CHA Cambridge Health Alliance

MA Daily New COVID Cases 5_24_2021

Updated May 25, 2021



Clinical update:
Continued improvement at CHA hospitals. There are only 4 Covid patients in the hospital at present. Overall Cambridge daily 7-day average of new cases has dropped to 1.7 and MA daily new cases continues to decline to the summer 2020 baseline. The positive rate in Cambridge is 0.11% as of May 20th based on MDPH reporting.

Vaccination update:
CHA continues to focus a great deal on vaccination of patients, community members and staff. 80% of the CHA staff have received 1 dose, and 75% are fully immunized. There is some hesitancy among the remaining 20%, but also many who are currently medically ineligible. Numbers of vaccines administered has declined overall, but CHA has managed to reach out to small groups who haven't been vaccinated yet. Vaccine clinics will remain open through June with further clinic operations to be determined. Panel members expressed interested in seeing the hospitalization remain flat even after all State and local restrictions have been lifted May 29th. It's reasonable to expect there will be ups and downs until we have much more control over transmission. The fall of 2021 will be a very important indicator of ongoing risk.

Youth vaccination incentives, similar to those offered across the US, were discussed to increase vaccination rates among teens. But incentives to reach students may need to target the parents more than the students, since the vaccination requires consent and many parents are hesitant to give permission. There has been some discussion about incentives at the State and locally, but no major program. MA vaccination rates for 0-19 age cohort is

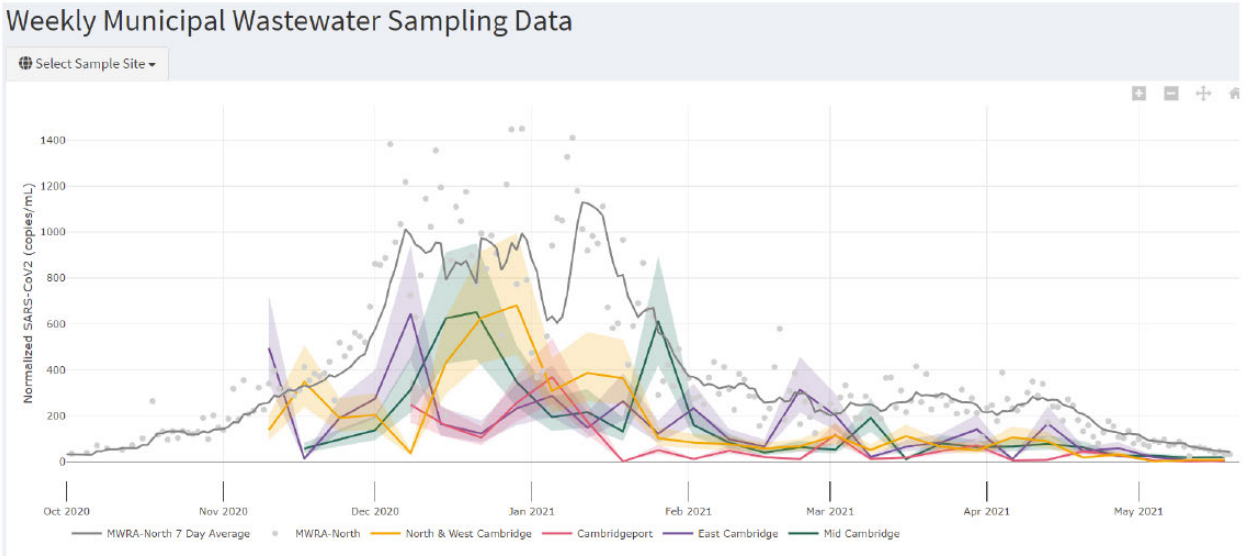
only 15%, while this group in Cambridge is already 43% vaccinated. Keep in mind that this includes 0–11-year-olds who are not eligible for any vaccine yet, so this reflects a much higher proportion of 12-19-year-olds. In brief, Cambridge teens are doing quite well getting their shots when compared with the statewide data. 166 student appointments have been booked for today's CRLS vaccine clinic with more coming in. Guardian consent, if not provided in writing, is being managed with calls to parents or guardians to obtain verbal consent. Two more clinics are being planned for 12+ students in the next few weeks. There has been some discussion with the Cambridge Community Corps (C3) about vaccination outreach to the student population and the C3 team plans to cooperate with Parks Division do arrange some pop-up outreach.

Three clinics are being scheduled (beginning June 4) to vaccinate unsheltered and unhoused population, about 90 individuals.

Pop-up vaccine clinics will be held at the First Church Friday Cafe on Friday 6/4, 6/14 at the Alewife Station and 6/15 at Traders/ Microcenter parking lot. We will be using J & J and this in partnership with DHSP, Healthcare for the Homeless, Access and First Step. CPHD, CFD and CPD will be facilitating these clinics.

Testing sites: Testing centers run by the Cambridge collaborative will drop from 4 sites, 7 days a week to 3 sites, 4 days a week starting next week (May 31st). 50 Church Street will no longer operate as a site. The City will also start offering the J&J vaccine at all testing sites through June.

Wastewater data:
Wastewater data is consistent with the very low case numbers, indicating little COVID transmission activity in the City and the region.



2) Variant updates and global trends. Daily COVID Cases in India, H5N8 outbreak article

There's a lot of uncertainty in interpreting the current trends in India at the moment, because testing is so limited. Nevertheless, the steep reduction is good news. B. 617.2 might be identified as a "variant of concern" by CDC soon. It has the potential to be more transmissible than B.117. and anecdotally is thought to be more likely to cause severe cases in UK. So far there hasn't been strong enough evidence to confirm immune escape (breakthrough cases).

The recent article (handouts)on H5N8 avian respiratory virus outbreaks in multiple countries was shared as a reminder that viral pandemics continue to pose significant risk from seen (regional outbreaks) and unseen zoonotic reservoirs. Panel members agree that the City need to use the COVID experience to build a plan to prepare the residents for emerging disease. One caveat: some policies and disease control strategies might be not be appropriate to viral pathogens capable of causing a pandemic. We made incorrect assumptions about SARS-CoV-2 that were costly, so we should remember "not to fight the last battle" blindly in building an adaptable pandemic response plan. Lessons learned include: 1) rapid identification of the highest risk groups, locations and occupations, 2) the centrality of universal testing, 3) the need for clearer risk communication, 4) better pre-coordination with private sector businesses, community/faith organizations, schools.

3) Wastewater Surveillance discussion with Mariana Matos from Biobot
Question 1: Is there a plan to continue developing variant detection protocols for emerging strains like B.1.617.2? We've discussed the challenges, once a variant become dominant (see B.1.1.7), since it no longer adds to our understanding of emerging and changing risks. Perhaps it makes more sense to use the regional signal for variants rather than samples from small catchment areas. There is frequently insufficient RNA to run for variants as it is.

Biobot is now working with HHS and CDC to bring their wastewater testing experience to assist in surveillance of 320 wastewater treatment plants across the US. The collected data will be part of HHS Protect and CDC's National Wastewater Surveillance System (NWSS). The testing procedure will include qPCR and sequencing for COVID. With the massive data collected from 320 facilities, the scope of the analysis expected to improve a lot. Biobot's current approach detecting the new variants so far has been to develop a modified qPCR essay. This approach focuses on targeting a specific mutation to create a new primer, and the process takes at least 6 weeks to develop and partially validate. Therefore, Biobot is planning to work with partners to improve variant detection by improving the level of detail and fidelity in sequencing overall, rather than develop methods to target specific mutations associated with known variants of concern or interest.

Cambridge data draws from much smaller catchment areas compared to MWRA regional data from Deer Island. CPHD staff expressed concern this could affect the sensitivity of the wastewater data and make the data less useful. Biobot staff believe that it's too early to be sure about variant detection sensitivity in large vs. small catchments. Samples taken closer

to the sources (e.g. capturing outflows from buildings or campuses) experience less degradation in the harsh environment of the sewer and so that detection is easier.

Question 2: Is there any prospect of a deployable sampling protocol that isolates our high-risk locations (based on patterns observed over the past 15 months)? We have a small number of local sewersheds draining 3 of our larger long-term care facilities near Fresh Pond, and the public/subsidized housing cluster on Rindge Ave. Understanding that it introduces "hunches" and inconsistent surveillance, it seems like we should be able to focus on hotspots a little more when we are in a surge.

The selective surveillance of a high-risk facility can be a sentinel (or sensitive cohort) for larger community outbreaks, so local targeting does potentially have a lot of value. For example, Biobot is cooperating with a university and a state-level department of corrections. Localized wastewater samples allows measurement of the background virus level seen in that building or campus. In multiple cases, high levels of virus triggered universal testing that successfully identified . This approach has resulted in universal testing on two occasions. Another application is to sequence a outflow to know whether the case in a specific location is an isolated case or the origin (or consequence) of the of a larger outbreak.

Cambridge could benefit by monitoring the outflow of few buildings in a small block that includes high-risk individuals, even if it isn't a single building. Biobot has successfully implemented this approach in jails and universities, capturing small outbreaks in a limited population (e.g., <5 cases out of 1,500 residents). So far Biobot has used this strategy in office buildings, student dorms and larger residential buildings.

Question 3: Any prospect of measuring antibody levels to observe the reduction of immune protection? Because long-term immunity isn't always reflected in antibody counts this might be misleading or if minimal value.

Biobot doesn't have any information suggesting that there is a practical method to detect antibodies in wastewater. Biobot doesn't have an active effort on antibody detection now.

Question 4: Any other metrics of public health value we could start to collect during the same sampling events (weekly). Presumably the collection is the great proportion of the time/cost/effort and perhaps we can leverage that and show more value to the City of Cambridge.

Biobot will soon be repackaging SARS-CoV-2 and variant surveillance services into an overall infectious disease monitoring platform. Their customer can refer this panel rather than contract for individual pathogens. Later this year Biobot will bring ramp up testing for seasonal influenza to determine if the sensitivity will be sufficient to generate data of sufficient value. Biobot is also collecting feedback from their customers regarding infectious diseases of interest. Discussions with CDC regarding target pathogens is still underway, but of course any target pathogen must be detectable in feces to be included.

Question 5: How much work has Biobot done on the temporal and transmission rate predictability of the viral counts in wastewater? Is the lag between wastewater signal spikes and case spikes highly variable from on district to another? Is it more reliable when drawing samples from a larger sewershed like MWRA?

As discussed earlier, smaller area samples (like single building) have been used to capture the early signals that can result in rapid response (universal testing within that building or campus). In such instances Biobot can identify a single case during the pre-symptomatic shedding period in a small population. In samples taken further downstream representing many combined sources, like MWRA at Deer Island, there might be more noise in the data, meaning less clarity in advance of a surge in transmission. Regional is still seen by many agencies as a confirmatory metric when testing data is unclear or insufficient to make a quick and early decision on mitigation policies.

Question 6: Regarding the temporal predictability, has the lag window between a wastewater spike and a case spike changed with any of the variants of concern?

No evidence as this point to indicate different lag times between variants.

4) EAP Final Meeting on June 9th

Adjourned 3:05 pm
Notes respectfully submitted by Sam Lipson on