

VCHIP CHAMP VDH COVID-19

August 5, 2020 | 12:15-12:45pm Call Questions and Answers*

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Mother-Baby Care Updates

Updated FAQs (7/22/20): Management of Infants Born to Mothers with Suspected or Confirmed COVID-19. UVMHC is continuously updating their policies.

Karin Gray, MD, UVM Medical Center: Thank you for getting the information out on AAP supporting rooming-in with infection control measures for newborns to COVID+ mothers. We are also asking offices to consider how they may be doing follow up, should these families follow in your offices. Specifically, lab draw if a baby of a COVID+ mother needs a bili drawn.

Safe and Healthy Schools – Pediatric Testing & Return-to-School Algorithm

Drs. Lee and Raszka helped develop a draft document to review indications for COVID-19 testing in School Aged Children and return to school criteria. We request your review and feedback. We anticipate this will be the focus of our call on August 7.

Practice Issues: Pediatric COVID-19 Data, Benjamin Lee, MD, and William Raszka, MD, UVMHC Infectious Disease Experts

Benjamin Lee, MD, UVMHC & LCOM Dept. of Pediatrics: Many studies have been released over the last week that have garnered a lot of press attention. We wanted to take this opportunity to go through some of the bigger, more contentious articles that have been making their way around. The first is the recent MMWR report that describes an outbreak at a summer camp in Georgia. A better title for this would be how not to open a congregate setting. Some of what went on was pretty horrifying. When we look at the mitigation strategies the camp implemented, many of them were required to have a negative COVID-19 test before arrival, but their window was too long. It could be up to 12 days before arrival, which is basically useless, since that window of time is way too long to ensure that those who got tested earlier couldn't have acquired infection during that interim. It appears that's exactly what happened. They did not require campers to wear masks, only staff. I would argue that was dangerous, especially with all the shifting understanding of the potential in certain scenarios for there to be aerosol-based transmission. Hand-in-hand with that was the recognition that windows and doors were not being routinely opened to increase ventilation when people were working indoors, which again I do not understand, especially in a summer camp setting, why that would not have been done. Finally, the investigation identified the fact that there was promotion of what they described as daily vigorous indoor and outdoor activities, including singing and cheering. So, if you have a large group of people indoors not wearing masks with windows and doors shut singing and cheering, that has all the components of a recipe for a super spreader event, which what happened here. This was all happening in the context of a state that had really not achieved good community transmission. June 17th was the date the staff arrived to begin their training session. On that date, there were 915 new cases statewide, and even before then you could see there was a plateau for months in the number of daily cases.

*Note: This is a paraphrased synopsis of the call and is not a word-for-word transcription.

So, transmission had not been shown to be decreasing, indicating there was not any type of handle on community transmission. June 21st was the day the first campers arrived. On that day, there were 824 new cases. By the end of that week, there were 1,524 new cases in the state. If you compare that to Vermont, where we've yet to reach that number of cumulative cases throughout this entire pandemic, you can see there is a lot of community transmission going on. The index case, a teenage staff member, presented with symptoms on June 23rd and tested positive the following day, at which point they started sending folks home. However, by then the damage was done. At the end of the day, 260 out of just under 600 attendees and staff ended up being infected for an attack rate of 44%, which is astronomically high. Roughly 1/4 of those infected were asymptomatic. The most common symptom identified was fever, followed by headache and sore throat. This investigation is still ongoing, so more details will be coming out. This is a cautionary tale illustrating the importance of many of the mitigation strategies we are recommending, particularly in the school environment.

Next up is a study published in *JAMA Pediatrics* that looked at differences in the viral load of SARS-CoV-2 in the nasopharynx in children versus adults. This study has garnered a lot of attention and I want to give just the briefest of backgrounds in terms of real time PCR, because most of these studies discussing viral loads rely on real time PCR to do the viral detection. This is a lab procedure that uses specific primers, which are short segments of DNA that are designed to complement or bind specific sections of nucleic acid within whatever you're targeting. These primers are usually combined with some type of fluorescent probe, your PCR enzyme and other reagents. At the end of the day, the goal is to find a specific stretch of gene in your sample and amplify it. So, when we talk about a cycle of PCR that means there is a fixed series of temperature changes that promote binding of the primer, copying of the target gene sequence and everything else falling. You repeat this process, so each time you do a cycle of PCR, the amount of that target in the sample will double. If your gene target is not present, you will not get amplification or a change in fluorescence. If it is present, you will eventually see enough via amplification to allow for detection with fluorescence. We're talking about measurement of the nucleic acid/RNA, which does not provide an indication of how much of that RNA is actually there in the form of mature and infectious variants capable of infecting neighboring cells. Usually for most viruses there is a correlation between the amount of genome copies you can detect by PCR and the amount of infectious virus, but it's important to note that these are not the same thing. For this study, they found children less than five had a median cycle threshold (CT) value of 6 compared to 11 in adults. This translates to about a 10-100 fold higher viral load, indicating a log difference of about 1-2. This cannot tell you how much of that virus is actually infectious or how efficient children are at getting this virus out of their bodies to infect another person. The results suggest children can harbor very high amounts of the virus, but that's different than saying children are more infectious.

The next article is a preprint released this past week looking at the results of contact tracing in an Italian province during the early phase of the pandemic. This is a pre-print, meaning it has not been peer-reviewed, but it's already generating lots of press coverage. The local health authorities developed a web-based contact tracing platform that went online during March and April of 2020. This was during a period of strict lockdown, so schools were closed. Using this method, they were able to identify about 6,700 contacts. Out of those 6,700 contacts you can see that most of the data was generated within the form of household contacts. When everything went into lockdown, it makes intuitive sense the number of contacts would be limited to household members. Almost 900 of those contacts developed symptoms and were determined to be cases, although only about half of them were lab confirmed, yielding a

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secondary attack rate of 13.3%. This rate is in line with what most other studies have found in terms of secondary attack rates. However, the age breakdowns are interesting and have been garnering significant attention. The results indicate the 0-14 age group had the lowest risk of infection. So, this study confirms that children are at lower risk of contracting the virus when exposed. However, the results also indicate children 0-14 actually had the highest rate of transmission. These are really interesting data because the results indicate the complete opposite of what every other household contact tracing study has demonstrated in multiple other countries and settings. I'm not saying the data aren't real, but these results are very inconsistent with the global experience to date.

Lastly, I want to touch on another study published in *JAMA* talking about the temporal association between school closures and subsequent COVID-19 incidence and mortality. Following school closures, incidence and mortality decreased. The greatest effect was seen in states with the lowest cumulative incidence, with the lowest effect observed in states with the highest incidence. The limitation to this approach is that 39 states employed all 4 additional interventions studied. They did not evaluate other important interventions, such as masks. There's no way to really estimate or account for uptake and adherence to these interventions, so my interpretation is that (as the authors specified) it's impossible to know which of these interventions was actually associated with these effects.

William Raszka, MD, UVMCH & LCOM Dept. of Pediatrics: New South Wales in Australia put out a new research study on the transmission of SARS-CoV-2. They identified all COVID-19 infected children and adults in 25 primary and secondary education centers in New South Wales through April 10. All close contacts were quarantined at home for 14 days and were offered PCR testing if symptomatic. In some settings, PCR testing was given to both symptomatic and asymptomatic contacts, but it was inconsistent.

Aside from a single complicated early intervention program, the secondary attack rate was really low. In the school setting, they did not see significant transmission of COVID-19, and they did not see an increase in COVID-19 in the community. Generally speaking, there is a lower rate of pediatric disease than adults. Children are unlikely to initiate or propagate outbreaks, even in the school setting. They did say rapid and effective state and national public health and community responses were essential (contact tracing and isolation/quarantine). There were some limitations.

The next publication I'd like to discuss is about contact tracing during the coronavirus disease outbreak in South Korea. This is powerful data due to the large number of people involved. Also, the South Korean government had a pretty impressive program for contact tracing in place. For children ages 10 to 19, there were very few infected in that age group based upon the population and there were not many contacts traced in this group. For ages 0-9, they did not transmit to non-household contacts as much as older age groups. The big data was in ages 10 to 19, but 5th graders are different than 19-year-olds. In this age group, these kids did not transmit efficiently in the school setting. Children under age 10 seem less likely to transmit to household and non-household contacts. Children ages 10 to 19 are as likely as adults to transmit to household contacts. They are less likely than adults to transmit to non-household contacts. A limitation was grouping together all children ages 10 to 19 and they do not know the direction of transmission.

Questions/Discussion:

Q: Question from my regional CIS Intake Team meeting this morning: Could we get some clarification/comment about the unintended consequence of the hybrid return to school model leading to many school aged children now needing to mix into a second site/cohort at childcares on their non-in school days and the resultant additional cross-contamination?

A: William Raszka, MD, UVMCH & Larner COM Dept. of Pediatrics: That issue surfaced after a physician from the Harvard School of Public Health said in an interview that hybrid learning had the potential to increase the number of contacts and therefore increase the likelihood of community transmission.

A: Becca (Rebecca) Bell, MD, UVM Medical Center: My only worry about this is that I don't want to push schools who are planning on hybrid to go all remote.

A: Breena Holmes, MD, VDH: We are hopeful that with revised guidance out this Friday, schools can shift their models early in the school year.

Q: I have schools saying they are looking into having essential learning programs or E.L.P. Daycare. This is done at the schools. I am confused why schools can offer to take care of the kids on the days of the week when not in school due to the hybrid.

A: Ashley Miller, MD, South Royalton Health Center: What our school district is doing in elementary is class until around 1p, and then childcare from 1-3p, no comment on cohorting at this point during the 1-3-time frame.

Q: If kids can go to daycare 5 days a week at school, how come they can't go to school 5 days a week?

A: William Raszka, MD, UVMCH & Larner COM Dept. of Pediatrics: That was the subject of NYT or WSJ article. It turns out that the schools have emphasized education while child care has emphasized care and education. Care does not get the same protections.

Q: Is the benefit of childcare vs school might be r/t smaller groups/easier contact tracing? The group was wondering if in-school, ALL the time wasn't preferable. The group has started hearing about some child care sites declining enrollment of EEE sites and other children due to their in-school site exposure.

A: William Raszka, MD, UVMCH & Larner COM Dept. of Pediatrics: I think it needs a long discussion. For some early intervention programs, the group size is small.

Q: Following the CVSD meeting yesterday, the updated guidelines really need to be black and white with being less than 6 feet.

C: Breena Holmes, MD, VDH: For pre-K through grade 5, the revised guidance is crystal clear.

C: Jill Rinehart, MD, UVM Medical Center Pediatric Primary Care (Williston): SBSD has ordered collapsible desk/chair combo for each student to carry from class to class.

Q: The attack rates were just as high (slightly higher) in young children in GA. Is that useful information to consider when planning whether to use 3ft or 6ft distance for desks of younger children in schools?

Q: I'm very tired of hearing children are immune to COVID.

A: Alex Bannach, MD, North Country Pediatrics: I agree. I was just told that my office nurses do not really need to get fit tested because we are a pediatric office, I am aghast and of course will get them fit tested. Won't need the N95 frequently because of where we are, but definitely in some scenarios.

A: Jill Rinehart, MD, UVM Medical Center Pediatric Primary Care (Williston): I have to admit I was confused and thought anterior nares testing could happen without requiring an N95 mask (but all other PPE and

surgical mask). I thought that was how it saved on PPE. I'm pretty plugged in and find it's getting more complicated, not less!

A: Breena Holmes, MD, VDH: The patient can collect his/her own anterior nares sample, which spares PPE for the provider.

A: Jill Rinehart, MD, UVM Medical Center Pediatric Primary Care (Williston): Right, or the parent could?

A: Ashley Miller, MD, South Royalton Health Center: FYI, school districts are talking about N95s for nurses and may need some education.

A: William Raszka, MD, UVMCH & Larner COM Dept. of Pediatrics: Yes, I'm working on getting the appropriate PPE for everyone in the school. The teachers have been given KN95 masks, which are quite different from fitted N95 masks. There's a lot of discussion around what an N95 mask is and what a KN95 mask is. The KN95 mask is a Chinese standard mask and does not perform like an N95 mask. It's not fit tested, there's a slightly different strapping procedure, it will provide additional protection over a surgical mask, but it's not a substitution for an N95 mask.

Q: Is N95 for every teacher appropriate? We don't have fitted N95s in our office.

A: William Raszka, MD, UVMCH & Larner COM Dept. of Pediatrics: Teachers do NOT need N95 masks. If they want to use the K95 masks, they can, but I have been pretty clear that procedure masks are better.

A: Ashley Miller, MD, South Royalton Health Center: So the school district near us is looking at N95 masks for every teacher. We were sent N95 from the state to use. They are not fitted and when we called local hospital to get fit tested, they told us they wouldn't.

A: Sharonlee Trefry, RN, VDH: The State Emergency Ops have donated decommissioned KN95. It is recommended that direct care health care for SNs and others is to use surgical mask with face shields is the way to go. Rarely will special circumstances after individual student planning with medical home need N95s.

A: Benjamin Lee, MD, UVMCH & Larner COM Dept. of Pediatrics: There are multiple masking issues all being brought up here. Fitted N95s are not recommended for teachers. Routinely, there is a supply of KN95 masks (which do not require fit testing) that are being provided to teachers.

A: Benjamin Lee, MD, UVMCH & Larner COM Dept. of Pediatrics: Which provide a slight step up in terms of personal protection from standard surgical masks for the school nurses. The issue is whether there is any indication for fit tested N95s since they are the ones who may have more concerning exposures (e.g. what if an asthmatic child develops symptoms at school of fever, cough, and wheezing and needs a neb?). We will need to develop some consistent guidance around this.

Q: How has the virus mutated from China to Europe to the US?

Q: With the Italy study, it seems very few cases among the 0-14 cohort (only 14?) compared to 100's in other cohorts. Wondering how that plays into comparing age cohorts?

A: Benjamin Lee, MD, UVMCH & Larner COM Dept. of Pediatrics: I agree, smaller numbers always make interpretation more challenging.

Q: How about fitted N95s for private primary care?

A: Benjamin Lee, MD, UVMCH & Larner COM Dept. of Pediatrics: Remember, for patients with symptoms suspected for COVID who require an aerosol generating procedure, the recommendation is for a fitted N95 in that scenario is suspected but no aerosol-generating procedures, universal N95 (not fit-tested) is considered adequate. This is the UVMCH guidelines.

A: Liz (Elizabeth) Richards, MD, Brattleboro Primary Care - Pediatrics: We were supplied fitted N95 from our local hospital.

A: Ashley Miller, MD, South Royalton Health Center: We were sent N95 from the state to use. They are not fitted and when we called local hospital to get fit tested, they told us they wouldn't.

Q: Are we going to make them available to private primary care at some point, or are we going to continue to do nebs in cars?

A: Alex Bannach, MD, North Country Pediatrics: I can imagine few select circumstances where I anticipate using those: Symptomatic, high risk travel, patient unable to wear mask. Need for np testing. We are planning to continue doing only HFA with spacer/mask in office, with the exception of racemic epi for croup, in which case, I probably would use N95 as well.

A: Benjamin Lee, MD, UVMCH & Larner COM Dept. of Pediatrics: I can only address what we are doing within UVMCH. Supplies for N95s for non-network sites and that supply, I believe, would be coordinated via VDH.

Q: Is this accurate? <https://smartairfilters.com/en/blog/comparison-mask-standards-rating-effectiveness/?rel=1>

A: Benjamin Lee, MD, UVMCH & Larner COM Dept. of Pediatrics: I think the table appears accurate to me.

Q: Could this group address HVAC and air purifiers in the private pediatric offices?

A: Benjamin Lee, MD, UVMCH & Larner COM Dept. of Pediatrics: For business locations (not healthcare), CDC has said they could consider using air purifiers using HEPA filters in individual rooms, but the biggest issue is ventilation, meaning having good air exchange.

A: William Raszka, MD, UVMCH & Larner COM Dept. of Pediatrics: If you have adequate ventilation, you don't need additional filters. As long as you have some sort of ventilation, you don't have to put in HEPA filters. If you have no ventilation in your rooms, I guess that is a potential benefit but it's very unclear because that air's not exited out of the room and presumably the filter traps it. We highly recommend just having good air exchange, more than anything else.

Q: Is CDC coordinating research on COVID-19 outbreaks in schools?

A: Benjamin Lee, MD, UVMCH & Larner COM Dept. of Pediatrics: I'm not sure if CDC is doing anything at a national level, but doubt it.

Q: From a work flow perspective, we are continuing to receive requests for detailed medical letters for families to elect 100% remote education. Some of these children have appropriate medical indications, others do not. I understand the majority of the state is offering 100% remote as an elective (no medical diagnosis needed). A bigger conversation is how these schools will remain staff. Listening to recent school board meetings, the answer for many questions is "call your PCP".

A: William Raszka, MD, UVMCH & Larner COM Dept. of Pediatrics: That's a big issue for pediatricians seeing children and it's a huge issue for health care providers who are seeing adults who work in schools. The NEA just released their survey and 30% of people who responded to the survey, and I don't know the response rate, said they meet high risk criteria by CDC definitions. They will be going to their PCP to decide whether they can teach in person.