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COVID-19 UPDATE: EXPERT Q&A WITH PUBLIC HEALTH, PRIMARY CARE, VACCINE, EPIDEMIOLOGY, AND LAB SPECIALISTS

Webinar date: **November 16, 2021**
Recording & Presentation Slides: https://ubccpd.ca/11-16-2021-covid-19-update-expert-qa-public-health-primary-care-vaccine-epidemiology-and-lab

Disclaimer: Information on COVID-19 is changing rapidly and much of the research is preliminary. Assessment and management protocols are suggestions only; they do not take the place of clinical judgement. Please check with your own health authorities and local medical health officers as policies and support for the suggested approaches to patient care may vary between regions.

This summary was prepared by Dr. Birinder Narang and not by the speakers.

Webinar Summary

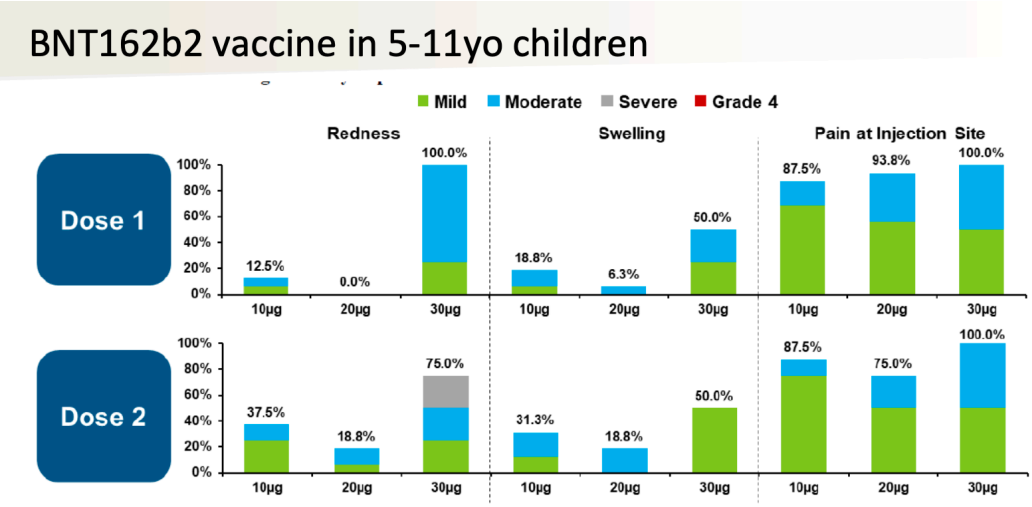
BC Epidemiology Update – Dr. Gustafson

- Vaccination Coverage
  - Overall, there is great coverage across the province
  - See slides for details
- New Daily Rates
  - Vancouver Coastal Health demonstrates what can be done in a highly vaccinated community with low case rates, low hospitalizations, and low mortality
  - Northern & Interior Health have seen surges
  - Immunization is increasing in every region and thus cases and hospitalizations are decreasing in every region
- Rates of infection, hospitalization, and mortality are substantially higher in unvaccinated populations
  - Mortality is extremely rare in fully vaccinated individuals

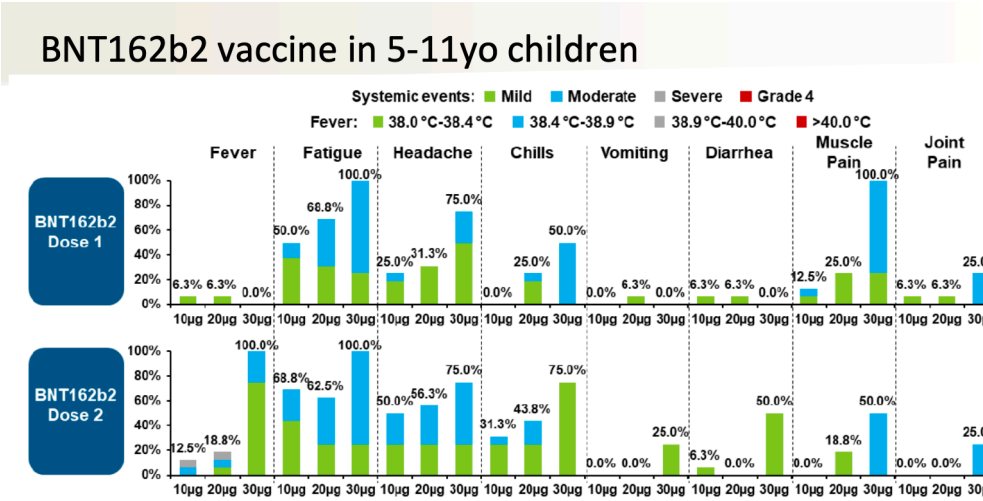
- There was a substantial increase in testing coinciding with an increased rate of pediatric infections seen in September
    - Other respiratory infections were circulating as well
- Protection against vaccination spans across age ranges
- There have been 0 hospitalizations in fully vaccinated individuals 12-17 years in age

COVID 19 Vaccine Update – Dr. Manish Sadarangani

- **Doses**
    - We are looking at different doses in 5-11yo children; the initial dose was 30 mg, now reduced to 10 mg (1/3 of the adult dose)
    - Some local reactions with different doses:
        - Most of the symptoms are mild to moderate
        - Substantial redness and swelling occurs with the 30 mg dose
        - Slightly lower pain occurs with dose 1 and 2



- **Systemic Reactions**
  - Again looking at different doses, the 10 mg dose had the lowest side effect profile
  - Common side effects:
    - Fatigue in 50-70% of children after 2 doses
    - Headache in 25-50% of children
    - Chills in 1/3 of children after receiving the 2nd dose
    - Fever rates relatively low



- **Immune Response to Vaccine**
  - Comparing the 5 to 11 year-old age group that received 10 mg with 16 to 25 year-olds receiving 30 mg, we see a similar antibody titre response
  - We don't yet have an established correlate of protection
    - It is most likely the case that antibodies are the mediator of protection

BNT162b2 vaccine in 5-11yo children

		Vaccine Group (as Randomized)											
		BNT162b2						Placebo					
		10 µg 5 to <12 Years (C4591007)			30 µg 16-25 Years (C4591001)			5 to <12 Years (C4591007)			16-25 Years (C4591001)		
Assay	Dose/ Sampling Time Point[a]	n[b]	GMT[c]	(95% CI[c])	n[b]	GMT[c]	(95% CI[c])	n[b]	GMT[c]	(95% CI[c])	n[b]	GMT[c]	(95% CI[c])
SARS-CoV-2 neutralization assay - NT50 (titer)	1/Prevax	264	10.1	(9.9, 10.3)	253	10.3	(9.8, 10.8)	130	10.0	(10.0, 10.0)	45	10.0	(10.0, 10.0)
	2/1 Month	264	1197.6	(1106.1, 1296.6)	253	1146.5	(1045.5, 1257.2)	130	10.7	(9.7, 11.8)	45	10.0	(10.0, 10.0)

Questions & Answers

Boosters

Q: What should we get for our booster (i.e. brand)? Is there a recommendation?

A: mRNA is recommended, though there is not a huge difference on which one to take as both are effective. mRNA vaccines are extremely effective; original trials had a 95% efficacy rate for both. A longer interval is better for protection. Antibodies post-vaccination are higher than is seen with natural infection.

Data supports that the AstraZeneca vaccine is still very effective against severe illness and death. It does not induce as strong of an antibody response, but it does produce a very good cellular mediated response. Individuals who receive a booster that is the mRNA vaccine will probably have the most robust immune response, though people who received AstraZeneca did not get short changed.

The Johnson & Johnson vaccine is licensed and approved as a one dose vaccine; it is not to be used as a vaccine booster, but for vaccine-naïve individuals.

Q: What is the rationale for healthcare workers who are 6-8 months past their primary dose but not being offered a booster yet? I am 5 months after dose 2, and just received an invitation for a booster shot – should I wait until it's been 6 months?

A: There is no evidence of waning immunity in BC yet. This is precautionary right now. Everyone that has been immunized is still protected from the vaccines that have been administered. The goal is to give everyone access to boosters. Some people are being invited early to get people into clinics, as we want to maximize capacity.

If you received the vaccine on schedule versus receiving it around 8 weeks after your first dose that gives about a 10% increase in protection against severe disease. In older individuals, as immunity wanes, there will be better protection from receiving a booster (as seen in Israel).

Q: Do young people need boosters? Should we be giving booster doses around the world?

A: Right now, there is good evidence of sustained protection against severe disease in all age groups. Adolescents have been vaccinated more recently, so we have some time to wait. We have real time monitoring of vaccine effectiveness along with age-based data. When we see significant waning, especially against hospitalization, that will be the indication to move forward with a booster program in that age group.

This is not a science question, but more of a geopolitical, ethical question. We have to look at it through an equity lens (i.e. in some countries, healthcare workers are unvaccinated and their systems are on their knees). While we have uncontrolled viral transmission around the world, there is still potential for new variants.

Though the booster program was announced for the entire population, it is being prioritized for those recommended by the NACI. We will adjust based on data as it comes in. This does not necessarily mean that we will need a booster every 6 months or so. Any decision based on boosting depends on how widely the virus is circulating, whether it is mutating, and how much protection is being seen.

The current mRNA vaccines and AstraZeneca vaccine immunizes you against the entire spike protein, which is a large molecule. All the variants that have been detected are protected against this. We are hopeful that there won't be a "breakout variant". The challenge for a virus to breakout is that it must essentially change its entire spike protein, but we believe the probability of this happening is unlikely. It is mutating slowly, and we do not suspect that it will be like the influenza.

Q: What are you telling your patients who have had COVID regarding booster doses?

A: It is safe to get vaccinated post-quarantine after you have been infected. We believe the same would hold true for boosters. Natural infection cannot be monitored as done with vaccination surveillance. At the individual level, we don't know how much protection there is and for how long it will last. Vaccination will help guarantee protection. People who get less severe infections generate fewer antibodies; vaccination gives a consistent level of antibody response.

Vaccine + Transmission

Q: Could you comment on the prospective study in The Lancet where transmission rates are the same in both unvaccinated and vaccinated populations?

A: The devil's in the details; this study is looking at the efficiency of transmission. Households are the most efficient place to transmit and this has been seen throughout the pandemic as you spend the most

time with household members. In this study, if you are fully vaccinated and you get infected anyway, you can still efficiently transmit to your household contacts.

It is important to consider this is if you get vaccinated, but the vaccine prevents you to a large degree from getting infected in the first place. If the period of viral shedding was also reduced, then you are statistically less likely to transmit, especially outside of the home.

Q: Should I be socializing indoors over the holidays? Is Christmas cancelled?

A: The risk of COVID-19 in vaccinated populations is significantly reduced, and there have been significant mental health impacts from isolation. There will be a degree of transmission, but the consequence of that is much lower in those who are immunized.

It is important to be personally responsible if you are sick. If you have symptoms of COVID, the flu, etc., ask yourself if it is appropriate to show up at that get-together.

Q: Will the vaccines be altered for new variants?

A: There was concern, especially with the Beta variant and in vitro data, that vaccines would not protect against variants. A lot of companies made vaccines based on that variant. As it turned out, the Delta variant became the most dominant and we saw fewer concerns regarding vaccine-related immunity.

The vaccine induces a robust enough immunity to protect against severe diseases (e.g. lower respiratory disease). There is an effort to induce a more potent nasopharynx response to help reduce the risk of transmission. We don't necessarily do that (i.e. with influenza).

Rapid Antigen Tests

Q: Are we going to be doing Rapid Antigen Tests? Should we be doing this in high-risk populations?

A: What we need to come to grips with is thinking through how best one can provide the test where it will have a material impact – i.e. in remote, rural, or congregate settings and populations that are unimmunized.

We must balance that with society and our goals. We are not here to prevent every transmission; we want to prevent severe illness. It is also about balancing resources into an asymptomatic testing program, and what benefit that achieves for society. We have used it in certain places in the pandemic (i.e. there is high risk of transmission in the Downtown Eastside, where there are clusters of cases). If conducted in asymptomatic populations, there is a risk of false positive tests as well.

Some shifts in thinking are needed regarding COVID-19 now that we have a largely immunized population. We have a lot of ways of determining the pre-test probability in terms of how likely that test will be positive for COVID-19.

If you have a different respiratory virus and are only testing for COVID, it doesn't solve the question of what your symptoms are. Use these tests where it would make sense and would alter the outcome (i.e. a family setting or population setting). That question is not answered by testing for everything.

Transmission

Q: Why does BC not act on airborne transmission of SARS-COV-2? The evidence is overwhelming.

A: In BC, we follow up on all COVID cases. Transmission occurs through prolonged, close contact, with households being the primary place of transmission followed by close, social interactions. There is much less transmission in structured settings such as schools, workplaces and health care settings. Infection control measures are addressing the patterns of transmission that we are seeing in health care settings.

A recent review on the evidence on modes of transmission considered effects of short-term versus long-term duration, rather than the effects of droplet versus airborne transmission. That evidence makes a much more useful distinction in that COVID-19 is transmitted through a variety of respiratory particles of a variety of sizes (small aerosol and larger droplets), but the vast majority of transmission continues to occur through close, prolonged contact.

Real-world infection control is very difficult. We cannot solve world problems by preventing aerosols; generally, it doesn't work and it's not feasible, but it makes sense in some contexts (i.e. intubation).

Q: Do we need to do all this surface sanitizing? Why are office rules based on surface transmission?

A: We do think it is safe to see patients in office settings. It is prolonged face-to-face, unprotected contact that causes transmission. When patients are being seen in office, there is a short duration of interaction and PPE is in use. The focus on cleaning and disinfecting surfaces is not very significant.

Offices have been open for a while now with varying degrees of virtual to in-person care. We are not seeing large scale transmission where there is direct patient care happening.

We must look at what is effective and practical. The risk in providing only virtual care is higher than seeing patients in-person at this point (i.e. delayed diagnoses).

Guidelines, when they were written, reflected emerging pathogen guidelines at that point in time, but COVID is an established pathogen now. The relative contribution from surfaces is lower than was initially thought.

Q: Why does BC have a higher death rate per capita than Ontario, Nova Scotia, Quebec?

A: Mortality rate per capita as calculated by Dr. Gustafson, is actually lower than Ontario & Quebec, but higher than Nova Scotia.

Pediatric Vaccination

Q: What is the best course of action for kids who are age 11 and eligible for full dose vaccine in January 2022?

A: The vaccination program was based on birth year rather than chronological year up until now, so some 11-year-olds may have gotten it if they are turning 12 soon. Once the 5-11 age group is approved, it will be provided based on actual age.

Ultimately, it doesn't make a big difference. The data shows that the antibody response in 5-11 year-olds with 1/3 of the adult dose is about the same as the antibody response in adolescents who received a full dose. Both are highly protective.

The question is more about how quickly you want to get the child vaccinated, what the parents' desire is, what the risk at home is, etc. Immunologically, nothing really changes from ages 11-12; either of the doses are effective, but there is less of a side effect profile with the lower dose.

Q: Do we know about spacing yet between the 2 doses?

A: This is not approved by Health Canada yet. We can expect that an approximate 8-week interval will likely be better as it has provided better protection. We are expecting recommendations relatively soon; recommendations will likely take into effect that this does not have the same urgency as before.

Long COVID

Q: What do we know about long COVID? Are there additional Public Health measures being thought of? Will vaccines cure/prevent it?

A: There have been a variety of specialty clinics set up for people who had severe COVID and were hospitalized, as well as to help monitor follow-up while doing research. Patients who did not have severe disease but have persistent symptoms can also access this clinic. We don't have full surveillance of the issue but there is a study that shows reduction in persistent symptoms post-vaccination.

The question here is: Is there a higher rate of prolonged post infectious symptoms than after other infections, and if so how much higher? If we can prevent infection, then we can prevent prolonged symptoms.

There is not yet a lot of data suggesting that vaccination can alter the chance of long COVID developing.

There are also mental health impacts post-COVID, with suggestions that there has been less support for those in the community compared to those with hospitalizations.

Monoclonal Antibody Treatments/Clinics

Q: When will these clinics come to BC to help prevent hospitalization?

A: BC has access to some of these medications. We are receiving our first shipment now. They are mostly for unvaccinated individuals or individuals with chronic diseases that may cause complications. The real benefit is that they prevent hospitalization. These clinics may be used in more remote areas, where preventing hospitalization may improve the quality of life significantly. We have some recommendations now for BC; we will see them used in limited settings as we have limited supply.

There is no benefit if the person has antibodies, so if someone is vaccinated, the benefits will not accrue, and if they are the in the process of developing their own antibodies, the benefits will not be seen in that case either.

Variants

Q: Can you comment on the new variant, AY4.2?

A: The delta variant has spawned subvariants. One variant that was found to be circulating in the UK was this AY4.2 variant. We have previously seen variants such as this one. Vaccines target the entire spike protein; these variants so far may alter some transmissibility, but the protection afforded by vaccines is persisting. We will have to track whether this variant is more transmissible in our setting, as well as what is happening globally.

Resources:

- **Pediatric Vaccine Presentation:** https://ubccpd.ca/media/1019/download
- **BC COVID-10 Presentation:** https://ubccpd.ca/media/1018/download
- **Webinar Resources:** https://ubccpd.ca/media/1017/download

Thanks to the speakers on the video:

- **Dr. Reka Gustafson**, Vice President, Public Health and Wellness and Deputy Provincial Health Officer
- **Dr. Mark Lysyshyn**, Deputy Chief Medical Health Officer, Vancouver Coastal Health
- **Dr. Mel Krajden,** Medical Director of the Public Health Laboratory, BCCDC

- **Dr. Manish Sadarangani**, Director, Vaccine Evaluation Center at BC Children's Research Institute
- **Dr. Mitchell Fagan,** Family Physician
- Moderator: **Simon Moore**, Family Physician, UBC CPD Medical Lead