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EXPERT Q&A WITH PUBLIC HEALTH, EPIDEMIOLOGY & LAB SPECIALISTS

Webinar date: **December 9, 2020**
Recording: https://ubccpd.ca/covid-19-update-expert-q-and-a-with-public-health-epidemiology-lab-specialists
Presentation Slides (if applicable): https://ubccpd.ca/sites/ubccpd.ca/files/COVID-19-Dec9-Webinar-Slides.pdf

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

Skills Gained:

- Become familiar with and able to apply emerging evidence and expert experience regarding COVID-19 epidemiology, prevention, and investigation to clinical practice, including the use of vaccines.
- Be able to provide practical advice to patients regarding COVID-19 based on emerging evidence and the experience of BC experts.

COVID - What we have learned?

- **Shedding Virus** - 20-30 days is common, but can shed up to 100 days (virus not viable)
- **Repeat infections –** 5 published studies, have shown 25 cases of reinfection. 1 known case in BC. Coronaviruses in general, most of the time, will develop an immune response that lasts 1-2 years. People with severe disease, get stronger & stronger cell-mediated immune response. If asymptomatic disease, lower antibody level. 5-7% of ppl do not mount an antibody response. If someone is diagnosed with repeat infection, and it is identified as a repeat infection, will need to isolate again.

- **Source of infection for HCW** – Most likely place HCW to get exposed is in the community, second most likely from other staff, but very few from patients. HCW are more at risk from friends/family.
- **Pregnancy -** Pregnant women should be counselled not to delay pregnancy. While there is a small increase in risk from COVID (~1.7x), the absolute risk to them is low
- **Schools & Daycares -** low risk settings, large experience with COVID exposures in schools. Only ~10 transmission events/>200. School are NOT a setting where we are seeing a lot of transmission between students, student/teachers & student/parents transmitting between students and between students and parents,
- **Excess mortality Canada in 2020 vs other years?** In BC, no significant excess mortality. General mortality rates are 38-40,000/year. 523 deaths attributable to COVID. In BC COVID is 14th/15 top causes of death. In other places, as high as 4th. Our low mortality rate is due to our control measures.
- **Post COVID syndrome** – A VCH clinic has been established, FH is being established, to follow up as people can have prolonged inflammatory response. We are still learning re: Long term effects.
- **Limited Local Health Data –** more granular data is coming. Has been a topic of intense debate. Concern in small communities re: identifying patients, can lead to potential harm & stigma.

Testing

- **Should we test for atypical symptoms? IE Fatigue/GI Symptoms/Conjunctivitis**
    - Use clinical judgment. What is their risk? Exposure? Contacts? Travel HX?
    - Most ppl have fever/cough/SOB. Often do't have atypical symptoms without those.
    - Testing guidelines will likely change, to be more targeted for "cardinal symptoms"
- **Role of asymptomatic testing**
    - Can get pre-symptomatic and asymptomatic transmission, but when comparing positivity rates, the yield is very low unless symptomatic. Limited resources. Asymptomatic screening not recommended. It does play a role LTC evaluation, to see how virus was introduced to that setting, and assess effect of spread.
- **Role for sewage testing**
    - Useful screening test, that can give community information, but won't give enough information if you want to intervene. Need ot find out who is infected and how. So it may be a nice surveillance tool, but has to be fit into wider strategy & f/u..
- **Likelihood of false positive:** Current PCR Testing Sensitivity 90-95% + Specificity is 99.5 %, so ~1/200 tests will be a false positive
- **Cycle Threshold** – When infected, most people develop detectable RNA in PCR ~2-7 days after being exposed. Cycle threshold is how many cycles of amplification is required to diagnose virus. If need less cycles, then there is more virus, and vice versa. Cycle threshold ~12 in very infectious patients but can be around 35-45 in less infectious.

- **Rapid Testing in BC**: 2 tests currently approved
    - **Abbott ID NOW Rapid Nucleic Acid Amplification Test**
        - Point of Care test, takes ~15 mins. Sensitivity 75-85% (relative to existing PCR), Specificity similar to PCR 99.5 (~1/200 FP)
    - **Abbott Panbio COVID-19 Antigen**
        - Looks for antigen, takes ~15 mins. 65-75% sensitive relative to PCR.
        - This test is being used vulnerable patients in Downtown east side, aids in rapid decision making re: isolation/removing from congregate settings.
- **Nasal Swab vs Saline Gargle Testing -** When comparing them directly. Equivalent in sensitivity. NP still has technique variability which has implications.
- **What is the negative predictive value of testing** – Interpreting negative tests, has to be correlated to what prevalence is. Apply clinical/patient context. You may have small amounts of RNA on Day 1, but this can amplify in 24-48 hours. Virus is transmitted through social gatherings. Total prevalence in BC is low, 98% of BC residents have not been affected. Important clinical question, "Do you know someone with COVID-19"?. If the answer is no, as in, no known exposure & you have a negative test, you can be confident that it is a true negative.
- **Serology** - Limited use for serology, by the time seropositive, could have diagnosed by PCR. Serological response doesn't necessarily lead to seroprotection. Vaccine likely needed to give a durable immune response. What is immune response to natural infection and then to those who receive vaccine post infection vs those who are vaccinated alone?
- **Private Pay Antibody Tests** – Unknown utility right now. May be useful as part of a Public Health investigation, ie to identify a cluster, to determine if patient had it and then recovered. In general, one can NOT change behaviours based on antibody testing. Still need to wash hands/mask up/maintain social distancing.

Vaccination

- **mRNA Vaccines**
    - Novel vaccine – mRNA enters cell, uses cell apparatus to manufacture spike protein which stimulates immune response. Taken up by dendritic cells. 2 available in Canada made by Pfizer & Moderna
    - mRNA Lasts 10-14 days – then degraded, they are liposomes, do not shake vigorously as can denature it
    - Very effective in generating neutralizing antibodies
    - **Efficacy** → Both vaccines offer ~95%. Imperative was to have a 2 month follow up prior to approval
    - Will have 2 year follow up studies from Pfizer + Moderna re: safety and efficacy
    - How long protected? Unknown yet. Similar results for PCR confirmed clinically diagnosed and severe illness
    - Pfizer requires shipped on dry ice, ultra-low freezer. Dry ice suppliers that have been seen sourced. Moderna vaccine may be better for LTC settings – less rigorous freezer

requirements. May see differential use, ie Remote/isolated communities needs – likely better met with Moderna Vaccine.

- Not tested in pregnant women, breastfeeding, or in <16 year olds.
- Re: immunocompromised – data not reported yet. Concern isn't necessarily safety, but whether they can generate an immune response and will be adequately protected.

- **Adenovirus Vector and other Vaccines**
  - Several being made. Canada has invested in those. Canada has not committed to any live attenuated vaccine
- **Anaphylaxis?**
  - Reported in UK, 2 anaphylaxis cases. Both were individuals who carried Epi-pens. UK had made a recommendation of anyone with hypersensitivity of any kind including food-associated should not get it
  - When we observe an event that is anaphylaxis → important to have it evaluated clearly
  - Temporal relationship important as earlier onset after vaccine more likely indicative of causal association. Important assess components in vaccine that could be associated. → likely wasn't done yet in the UK decision.
  - Polyethylene glycol is a known allergen in both vaccines ingredients. The vaccines do not contain proteins nor are these egg based products.
  - True anaphylaxis from vaccine - 1 in 100,000 to 1 in 1 million. Lot of anaphyalxis "like events" include, anxiety, fainting etc can occur, especially in youth.
  - Two publications out now indicating US observations of increased anaphylaxis with the mRNA vaccines: NEJM https://www.nejm.org/doi/full/10.1056/NEJMra2035343 MMWR https://www.cdc.gov/mmwr/volumes/70/wr/pdfs/mm7002e1-H.pdf
- **If you have had positive COVID test/serology – do you still need vaccine**?
  - Consider defer being vaccinated for ~3 months**.** No one with acute COVID was in these trials but those without a history of COVID-19 were not excluded**.** Want to immunize ppl who HAVE NOT had it initially. Later on in vaccine campaign, everyone (who wants) will be vaccinated. Reinfection has not been observed to occur often, and in the few persons with a 2nd infection, it did not occur prior to 3 months after the first.
- **Re: "Mandatory Vaccines"**
  - Vaccinations are not mandatory in BC.
  - Immunizations are victims of their own success, as people haven't seen what a communicable disease can do to them or their friends. The value of vaccination will be re-enforced.
  - Over time, these vaccines could be included in the Vaccination Status Reporting Regulation for documentation requirements of school age children, but there are ways to get exemptions if needed including refusal by the parent/ guardian.

- It may be that in the future, policies similar to the Influenza Prevention Policy for health care settings would be implemented e.g., mask or vaccinate policy for Healthcare

Influenza

- **If control measures (ie masking) have reduced influenza, why won't it reduce COVID?**
  - Control measures have made substantial difference, ie safety plans in schools/work places go from being easily transmitted to poorly transmitted.
  - Very little influenza, haven't seen a laboratory confirmed influenza case in BC to date this season
  - More difficult to control COVID, as already circulating
  - Right now, the first 100/tests day from a location is being tested for influenza. If start seeing cases, will re-think treatment.
  - Remember, influenza has treatment.

Transmission

- **Likelihood of transmission: if both people wearing masks, but are in close contact** – variables involve, the type of mask, how are they wearing them, what activities are involved.
  - Most confidence is in HCW wearing medical masks, regardless of what patient is wearing, have not been seeing transmission in these cases.
  - W/ general population, with non-medical masks who may not be wearing properly → risk of transmission grows. Can't quantify.
  - masks are the lowest hierarchy of control, work better with distancing, hand hygiene

Going Forward

- **Social Gatherings -** Latest gathering restrictions – goal is connect only with people in household. When applying to self, think of the intent of the order. The goal is to reduce number of social contacts, as you may not be able to reduce work ones or those in your house. Ie, if someone has a child returning from college for winter – that is not a "social gathering"
- **When will ordered/limitations be lifted** – PH is optimistic about summer/fall. We have seen that COVID has a strong seasonal component, transmits less in spring/summer. If vaccination program goes well, most people over 70 in BC should be vaccinated in early summer. First quarter of next year will be strained with vaccine supply. To achieve herd immunity, we need about 2/3 of the population immunized.

Thanks to the speakers on the video:

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

- Panelist: **Dr. Monika Naus**, Medical Director of the Communicable Diseases & Immunization Service, BCCDC
- Moderator: **Dr. Simon Moore**, Family Physician, UBC CPD Medical Lead