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A Push for Real Normal: Mass Screening for COVID-19

Article:
Leo Poon
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Guest: Dr. Leo Poon is a full professor in the School of Public Health, Li Ka Shing Faculty of Medicine at the University of Hong Kong and is also co-director of the HKU-Pasteur Research Laboratory at the same university.

Bob Barrett: This is a podcast from *Clinical Chemistry* sponsored by the Department of Laboratory Medicine at Boston Children's Hospital. I'm Bob Barrett. Now, let's go back in time.

In December 2019, a cluster of atypical pneumonia patients epidemiologically linked to a wholesale market in Wuhan, China was detected. A novel beta coronavirus has been identified in some of these patients. Because of the potential for pandemic spread, there is a great need for rapid and accurate test for the detection of the virus.

That was how we began a *Clinical Chemistry* podcast in January 2020 with Dr. Leo Poon when the journal published one of the first laboratory tests to detect the coronavirus responsible for what is now known as COVID-19.
[Listen to that episode here]

Now, almost exactly two years to the day that we recorded that podcast, we have Dr. Poon back to discuss the COVID situation and his editorial of "Push for Real Normal: Mass Screening for COVID-19" that appears in the January 2022 issue of *Clinical Chemistry*. Dr. Leo Poon is a full professor in the School of Public Health, Li Ka Shing Faculty of Medicine at the University of Hong Kong and is also co-director of the HKU-Pasteur Research Laboratory at the same university.

So, Dr. Poon, it has been almost exactly two years since we had you join us for that *Clinical Chemistry* podcast on your method to detect the novel coronavirus that causes the disease, we now know as COVID-19. Could you have envisioned at that time the scope of global disruptions over these past two years and could you give us an update on what the COVID-19 situation is in Hong Kong right now?

Leo Poon: Right. I think right at early of this pandemic, we already -- I mean, my colleagues and I, have already write up of our reviews and our commentary and say that this is going to be a major problem that was spread to multiple countries and cause a huge amount of the people to get infected. But to be honest, we did not anticipate we had up to this level with so much disruptions, like travel restrictions, vaccine problem, and so and so forth. But anyway, in Hong Kong, we are doing fairly well. We only have about 1%, 2% of our population

being infected by COVID-19. We have about only 12,000 cases, right? And then, we have experienced the fourth wave of COVID. But the last one was at end of March last year, right? And after that, we basically only have a single-digit cases and, most of the time, most of them are imported ones. So, we manage it. And but now of this Omicron, we still now experiencing some imported cases and we have some limited transmission in the community at the moment, and we are now trying to control it better.

Bob Barrett: When knowing that SARS-COVID-2 can be transmitted by asymptomatic individuals, how can Hong Kong effectively suppress the disease transmission? It must be a great challenge.

Leo Poon: It was. I mean, actually, it still is a great challenge to us. But the government have been trying to use multi-pronged approach to try to detect those patients like, for example, we have a current policy for all the imported travelers. We isolate suspected individual who are suspected to be exposed with patients. And then, we have active contact tracing and, basically, a very aggressive one to try to find out those who are at risk. And then, we also have a community testing trying to do a screening on the community which may have a transmission chain there. And then most importantly, I think we also try to use sewage water to try to screen a positive -- we call it COVID waste buildings. So, whenever we have a building which have a sewage which is positive for COVID. And then, we would send a team and try to do a testing to all the residents in that building so that we can manage to identify potential COVID patients. Indeed, I mean, we found quite a lot in the past in the community.

Bob Barrett: You've mentioned that nucleic acid amplification tests are being used extensively in Hong Kong. Why are they not being used at those levels elsewhere and what are the hurdles to doing so?

Leo Poon: Well, I think one of the many reasons that may helped to use of this nucleic acid base assay for COVID screening. I think there are many issues like, for example, the limitation because of manpower, cost, reagents, and other logistics and how we can transport the sample or pass the information to give a stakeholder in a time-effective manner. Hong Kong is a small city. So, we can manage to integrate this system better and so that we can have a much quicker turnaround time in terms of the collecting sample, releasing the result, and also informed the stakeholder for follow-up actions. So, but for other city or other countries, that may be a challenge because all these requires quite a lot of people to work together. So, I think that is the major challenge. Maybe, our approach may be useful for our small city. But then, for a bigger city or even a country, then I think we need to do a

build another type of platform to try to facilitate this nuclear acid test platform.

Bob Barrett: Can we break down those barriers and is that crucial?

Leo Poon: Oh, yeah, yeah. That would be crucial. I mean, even people are trying to use different strategies to overcome some of these limitations. Like, for example, try to provide more training so that we have more medical technologists to do the work. I mean, not right now, I think quite a lot of medical technology overwhelmed by samples because there are a lot of testing -- in particular now Omicron is coming to many countries. So, I think that would be a challenge for getting enough technical staff to handle the samples and that also about resources in doing the test. I mean, basically, it is very expensive to run the artificial test. We have a lot of suspected patients and/or maybe you have to do a community screening. That will require a lot of resources.

Bob Barrett: Your editorial cites a paper by a Seattle-based group that appears in the same issue of *Clinical Chemistry*; can you tell us a bit about that work and its significance?

Leo Poon: I think this is a highly significant work. First of all, they try to manage to test the sample without RNA extractions. I mean, basically, these RNA extraction columns, commerical ones, they are quite expensive, right? So, that means we can cut the cost quite a lot. And secondly, they can also manage to try to do the test in a very timely manner so that they can have a very quick turnaround time, and release the result to the stakeholder quite quickly. And then, the other good thing is this assay can reduce the amount of labor. So, that means we don't need to ask our colleagues to do the extractions and then basically save a lot of time and resources and also manpower to do the test. So, I guess this is the strength of this particular test. I think that maybe allows other groups to conduct community testing in a more extensive manner.

Bob Barrett: Well, COVID-19 screening, of course, is one of the key components to control the disease. But what about vaccines? What is your view on the role of COVID-19 vaccines vis-a-vis testing?

Leo Poon: I think this is another major arm that helps us to control COVID-19. I mean, of course, we want to prevent spreading. So, we can try to use artificial testing to try to disrupt the transmission chain. However, I mean, this virus is so infectious, none of the policy will be bulletproof. So, I think we need to have additional strategies to protect our citizens. So, the vaccine so far is amazing. So, we have these vaccines the rest of period of time. And now, what we found is this vaccine can protect us from preventing having severe clinical outcome or even being killed by the infections. So, I think

this is very effective. Existing data show us that if two doses of vaccines can reduce severe clinical outcome and that for additional booster, it can help us to prevent infections even further. Some recent study showed that the booster can help you protect you by 85%. So, I think that is a very good vaccine at the moment. Of course, there are some shortcomings of this existing vaccines. We hope that other stakeholders can develop a better one which have a more long-lasting protective effects or you can able to cope with other variants of concern that will be emerging in the future.

Bob Barrett: Well, you were with us two years ago, one of the first people to talk about this disease. If we were to have you back as a podcast guest in another two years, say January 2024, where do you think the situation will be regarding the pandemic and testing and vaccinations at that time?

Leo Poon: Right. I think that would be in a testing phase of having a pandemic to a damage situation. So now, countries still using different strategies to control COVID-19. Some countries use live with COVID strategies and the other extreme is tried to use zero COVID strategies. But the problem is this virus has been circulated extensively in around the globe, and it will continue to emerge and sort of mutate and so that we do have additional variants of concern in future. So, to be honest, I think we may not able to eliminate it because these features of this virus, continue to circulate and a lot of mutations through this transmission chain.

So maybe in 2024, this virus still exists and you will be circulated like a flu-like situation. So, we have a low level of COVID-19 circulation in communities, and we have a vaccine, maybe even a better one, to try to protect us. So maybe, if you have to be vaccinated once in a while, I don't know how often. We will have to be vaccinated ourselves. But for sure, this virus is mutating and, if this kind of infectiousness, it will be very hard for us to use vaccine to eliminate it. Just like we cannot eliminate through by using vaccination only. So yeah, I mean, unfortunately, we have to try to live with COVID and, of course, maybe different countries have different strategies show that they can control the COVID-19 circulation in a different level.

Bob Barrett: Dr. Leo Poon is a professor in the School of Public Health, Li Ka Shing Faculty of Medicine at the University of Hong Kong and also a co-director of HKU-Pasteur Research Laboratory at that same university. His editorial of "Push for Real Normal: Mass Screening for COVID-19" appears in the January 2022 issue of *Clinical Chemistry*. I'm Bob Barrett. Thanks for listening.