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Welcome to the Pathologist Cut podcast. This RCPA podcast explores the broad medical specialty of pathology and the critical role pathologies play in medicine and health care.

[Dr Lawrie Bott]

Hi everyone. Welcome to this podcast. It is my pleasure to introduce Professor Peter Collignon, AM. Peter is an infectious diseases physician and microbiologist at the Canberra Hospital and Professor at the ANU Medical School. Peter is a member of many national and international committees for organisations such as the Australian Commission for Safety and Quality and Health Care and the W.H.O. He was made a member of the Order of Australia in 2010 services to medicine in infectious diseases, microbiology and infection control.

Peter, welcome. We live in interesting times. We've covered 19 influenza, RSV and other viruses circulating in the community. Looks like Australia is in for a bad winter. Can you explain why it's particularly bad this year?

[Prof Peter Collignon]

Well, there's something called an immunity date. In other words, we've been so good over the last two years, we actually had no influenza, much to my surprise. I thought the influenza was always below the radar and comes up in winter because there's factors in winter that make it easier to transmit it, close together, your indoors, humidity's low, all those things.

[Prof Peter Collignon]

But influenza seems to be imported because the only influenza we really had in Australia over the last two winters after we had the lockdown of the international borders with people who came back into quarantine. So that was surprising. We did have other viruses like rhinovirus, para influenza still circulating, but much less so and then particularly if you look at 2020, the number of people that went to doctors for respiratory infections was markedly lower than we've had for decades.

[Prof Peter Collignon]

And that's because of the restrictions on people not moving around. They just transmitted respiratory infections less to each other, not only COVID but every other respiratory virus as well. So that's been going on for two years until late last year and

then when we had opening a border and I guess perversely, because we had high levels of vaccination which are very good for COVID, that actually made people intermingled more.

[Prof Peter Collignon]

And so, you got exposed to virus that you hadn't seen for a couple of years in any numbers. And then we got suddenly quite large numbers and unusual outbreaks, for instance. And late last year, we had big outbreaks of RSV in children around different places of Australia. That's because they'd had very little for two years and the children were just susceptible.

[Prof Peter Collignon]

So in seasons that weren't the usual season, we got large outbreaks of virus and we're starting to see that again. So far this winter or even in spring, we are seeing larger numbers. Influenza is back, for instance, although the numbers overall aren't more than we saw in say 2019 in 2017. But and you know what it will do over the next few months, we'll just have to wait and see but it's very likely you'll have a bad flu season or RSV or rhinovirus or anything else if you haven't had any for a while.

[Prof Peter Collignon]

But because particularly children haven't been exposed and they or RSV and influenza have a lot more, so there's a lot more potential, if you like, for people to be exposed who have never been exposed to before. They will have bigger numbers, bigger viruses and spread it to others. So, what we're seeing so far is what I would expect for a winter where you haven't had anything for a few years, whether it gets really bad or it ends up just as bad as 20, 17 and 19, which weren't great.

[Prof Peter Collignon]

But you know, we could cope. I hope it's that way, but we'll just have to wait and see.

[Dr Lawrie Bott]

So we know a lot of that COVID19. But how dangerous is influenza and who is most at risk?

[Prof Peter Collignon]

Well, for all diseases and infections, those most at risk of those are older with underlying health diseases and immune problems. So if you look at COVID, for instance, before vaccines were available, if you were over the age of 80 and you got COVID, you had a 10% chance of dying compared to a 30 year old where it was about one in 10,000.

[Prof Peter Collignon]

Now with vaccines which are highly effective at decreasing your risk of hospitalization and death, that risk has been dropped tenfold is not twentyfold. So providing you're vaccinated, even if you're old and having had a boost, that your risk now of dying of COVID is probably similar per infection than if you got influenza so markedly lower but not zero.

[Prof Peter Collignon]

And so that's why it's important the more at risk you are. Yes, to be vaccinated, but you also have to take precautions to decrease your risk of getting any respiratory infection, you know, dying outside at lunch time with your friends rather than having people over for a dinner. The guys will not try and keep you crowded, you know, keep the numbers down inside, wear masks if you have to.

[Prof Peter Collignon]

If you're in situations where you can't do it, all those things don't make your risk zero, but they decrease your risk. And the older you are or the more you've got some underlying health problems, the more important it is to protect yourself, not only with vaccinations, but with physical precautions as well.

[Dr Lawrie Bott]

Peter, what's the positivity rate for influenza at the moment and is it different to previous years?

[Prof Peter Collignon]

Well, data I've seen from New South Wales and Victoria doesn't suggest it's different. In fact, if you look at influenza like illnesses in Victoria, it seems to be the same as a it's a bit earlier but the same as bad winters And in New South Wales I thought the positivity rate

was about 20% for influenza. You know, of all testing you do for influenza, about 20% positive.

[Prof Peter Collignon]

But coming down now whether it's going to stay or go up, I'm not sure. But the two numbers you need to look at. So knowing how bad influenza is, is what your positivity rate and also the numbers. The trouble with just looking at numbers, there's a lot more testing now than there was five years ago. So even if you see three times the numbers, it doesn't mean there's three times as many cases so you've got to look at positivity, right?

[Prof Peter Collignon]

Because that tells you where you are in your epidemic. But you then have to look at other parameters like hospitalizations or deaths because essentially I would think most people who are sick enough to come into hospital from influenza will have a test and you can then more meaningfully compare it to previous years. So I think we need to do more testing for lots of viruses because I think it tells us more what's going on.

[Prof Peter Collignon]

But comparing to the past, when you're doing a lot more tests, you've got to be careful. You might remember with hepatitis C sometimes it looked like we suddenly had a big epidemic, but that was only once we had tests available. So all these people that had it for ages, we weren't detecting. So you've got to be careful when we have really great new tests available, which we have with PCR all the time in pathology.

[Prof Peter Collignon]

But once they become readily available and more used, you can suddenly see a big spike that isn't really as indicative of a change in the cases because so many people were undiagnosed.

[Dr Lawrie Bott]

That's the difficulty with international comparisons it is.

[Prof Peter Collignon]

And even for COVID, I think the only true measure of how you're going is the number of deaths you're having per million people. 100,000. Because I think in countries that are well off, we won't miss all that many deaths from COVID because they will get tests tested but it's a real problem for developing countries where money is in short supply.

[Prof Peter Collignon]

In those places, you've almost got to look at excess deaths, you know, because usually they do record. If you did or not, you may not know what they died from. But if there's an excess in deaths says at the moment that's likely be covered. All the indirect effects of COVID, you know, not being able to get medical care for diabetes and stuff like that.

[Prof Peter Collignon]

So it's complicated, but a lot of the things we use, you've got to be careful if you're not comparing oranges with oranges. And that often is unfortunately the case with international comparisons. And even in Australia with comparisons with a few years ago.

[Dr Lawrie Bott]

Alongside influenza RSS feeds, the most common reason for children going to hospital for respiratory illness. Can you explain what RSV is and why it's causing more problems at the moment?

[Prof Peter Collignon]

Well, RSV starts the respiratory sim city or virus, so it's in a different family to influenza covered. But it's been there and has always been there. They are working on vaccines, but so far we don't have a vaccine that's very protective, but hopefully that will change. But it's essentially a real problem for children because they've never been exposed to it before.

[Prof Peter Collignon]

So it's a very common cause of pneumonia, bronchiolitis, and is as common, if not more common than influenza, in fact, over the COVID epidemic. Luckily, children appear much less susceptible to COVID and at least the consequences than adults, probably because

they don't have the ice to receive the way the COVID virus lectures onto. But they have great infections or great susceptibility to RSV.

[Prof Peter Collignon]

So often during the COVID years, the last two years RSV has put a lot more children in the hospital than, for instance, COVID has. And there's no reason that that's not going to change until we come up with either drugs that are effective against the virus, which we really don't have either, or hopefully vaccines that really decrease the risk for the very young children, in particular, adults can get RSV as well.

[Prof Peter Collignon]

So can end up with pneumonia and cough, but probably are more vehicles of spread to younger children rather than necessarily causing overwhelming disease in adults, probably because they've been exposed so often in their lifetime. And therefore they have a reasonable level of immunity that stops them getting anything out of the minor disease with it in the vast majority of people.

[Prof Peter Collignon]

But again, there's an overlap here. People who are, you know, in their fifties can get quite bad RSV and it can put them into hospital with a pneumonia. That's just as much, much more common if you're a young child because you won't have any immunity. And therefore you're very susceptible to the more deleterious effects. The only good news is, well, it's very common in young children.

[Prof Peter Collignon]

Often they're only sick for a few days, at least from a hospital perspective, and they make a rapid recovery. But some can get very sick, some need to be ventilated. And unfortunately, even some very young children can die from it.

[Dr Lawrie Bott]

The symptoms for influenza and COVID19 can be quite similar. Should people still be tested for COVID if they're unwell? And now influenza? And why test for both viruses?

[Prof Peter Collignon]

Well, I think this is a problem with any respiratory illness. People tend to think, oh, influenza, you know, when you got that compared to the common cold because the symptoms are so much different, that's not generally true. There's such an overlap of symptoms. You can't tell what virus you've got, and that's why pathology is so important. Now, you can argue here it needs to be tested.

[Prof Peter Collignon]

My view is everybody who comes into a hospital, particularly their child, needs to be tested for a variety of viruses. Because the treatment for influenza is different to the treatment for COVID, which again is different to RSV, for instance, the Big Three. But again, it's worth knowing whether you had rhinovirus or common viruses as well. So that's why at our hospital, at least in Canberra, we do Multiplex where we look at a variety of viruses on anybody that might need to be admitted, particularly a child RSV, influenza and COVID.

[Prof Peter Collignon]

But in a lot of people we may well look for other virus as well. Power, influenza, rhinovirus, that helps the public inform public health to know what is there, even if you can't do anything about it. But particularly for influenza and COVID, there is therapy and you need to know what they've got and you can't tell what they've got on symptoms.

[Prof Peter Collignon]

So you need pathology testing with PCR obviously the best because it's the most accurate, sensitive, et cetera, so that's the way to go for people who are sick enough to need to be in hospital now. So somebody who's either, you know, a 30 year old who's otherwise well and who's got a bit of a cough and a sore throat, you can argue there's not a lot of merit in there because while there is therapy for influenza with Tamiflu, it doesn't make a huge amount of difference.

[Prof Peter Collignon]

You know, it might make you sick for five and a half days instead of six days. It gives you a half a day benefit. But where it's needed for people who can come disastrously sick, those who've got underlying health conditions, those who look like they're sick enough to go into hospital, we need to know very quickly what they've got.

[Prof Peter Collignon]

And that's why they need testing to know, have you got hours? They have you got influenza, have you got COVID? Because there's quite different therapies depending on the test result that pathology gives you.

[Dr Lawrie Bott]

What are the treatments available for COVID19 and influence of COVID?

[Prof Peter Collignon]

There's now a lot of therapy and there's a lot of infused antibodies, for instance, particularly beneficial in people who haven't been vaccinated which hopefully is less and less. But, you know, those infused antibodies of various descriptions, the monoclonal antibodies have been developed, seem to be very effective depending on the type of decrease in your mortality if you're sick enough to be ventilated.

[Prof Peter Collignon]

For instance, a drug like dexamethasone increases your survival rate. There are other antiviral drugs, protease inhibitors and other basically anti COVID drugs that appear to decrease again, mainly in those unvaccinated, but even in vaccinated you would give it to people if they're sick enough to in into hospital, they disappear as well. So basically there is now a lot of therapy.

[Prof Peter Collignon]

There's therapy that decreases your inflammatory response. If you are bad enough to go indoors, you can get ventilate such a takemitsu. Then there's a whole lot of infused antibodies you can give people that basically gives them some immunity straightaway because with infusing into them, there is also a whole lot of antiviral drugs available now and more probably getting developed that also decrease the replication of the virus.

[Prof Peter Collignon]

So we're in a much better position now than two years ago. But equally, if somebody presents with respiratory symptoms, the only way, you know which of those drugs to give you because influenza therapy is different, for instance, with Tamiflu, you need to



know what they've got. And that's why pathology is such a vital component for anybody very sick or sick enough to come into hospital, because that means they're the people that very likely need therapy.

[Prof Peter Collignon]

And we've got now specific antivirals, depending which virus you go.

[Dr Lawrie Bott]

So PWD is talking about testing. We went through an extraordinary time over Christmas New Year, where we had this massive surge of different reasons for COVID testing with huge queues. Our laboratories could move the demand for testing now.

[Prof Peter Collignon]

Well, I think they're coping better than before Christmas. Because perversely, there's less tests being done now. I don't think that's necessarily bad when we're in the stage of want of wanting suppression to really low levels or zero. But you need to know who had it. And the best system by far and still is, is the place, the optics.

[Prof Peter Collignon]

But we've changed now. We're not going to get rid of COVID but what we've achieved with vaccination, we have decreased your risk of dying by over 90% in probably 95%. So our risk now if we get an infection with COVID, is no different than if we get influenza. And so we're not going to shut down society every winter and have lockdowns for influenza so we've got to keep it that way and we'll have to see what happens with vaccines and how often you need it.

[Prof Peter Collignon]

But basically we're in a different situation now, so that means not everybody has to be treated. It doesn't matter if we don't know that everybody's got COVID and if you are sick, whether it's influenza, RSV or COVID, you need to keep away from other people. So we need to change our behavior. The people with respiratory symptoms stay at home as far away as they can, as is practical from even their family members, sleep in a separate bedroom with your own bathroom and all those sorts of things.

[Prof Peter Collignon]

But they shouldn't go to work. They shouldn't associate with friends until their symptoms have gone. Now, that will decrease the transmission of lots of infections, not only common. If, however, you're got underlying health problems, you do need to know it. Now, this is where, perversely, while repeat antigen tests are nowhere near as good as PCR is, they probably are more indicative of how infectious you are perversely because they are not as good if they are positives you know, and on the basis of false positives, not all that common.

[Prof Peter Collignon]

It actually means high Europe, more of infectious risk to others, and they're the people who should stay away from this for a bit longer while we're still trying to keep it covered down a different level. So the approach now is different to what we would have had a year ago and the variety of tests you use would be different.

[Prof Peter Collignon]

Although if you're seriously ill and you have to come into hospital, in my view, you still need a place, the artist, to try and differentiate all those three different possibilities. You might have because the therapy is different depending on what you've got.

[Dr Lawrie Bott]

We're used to often getting infections once and having immunity for life. Why with respiratory viruses, can we get repeated infections often both very soon after another, including with kind of.

[Prof Peter Collignon]

Well, I'm not sure any of this is necessarily the answer to that, but so serious infections like measles, that is a respiratory virus. There seems to be only one type of strain and if you get infected, you seem to have very good immunity. Anybody born before 1960 has got immunity without vaccination and vaccination for measles. For instance, and for rubella gives you very good protection because of lack of strain variation.

[Prof Peter Collignon]

The difference with influenza is it changes all the time. You get shifts and drifts, so you're exposed to a virus that's slightly different and that's probably the same for covered why people get it twice. Having said that, people don't usually get it twice anywhere near as often if you're not immunized, for instance, or never had it. And the second infection tends to usually be mild, you know it doesn't put you in the hospital as much or those sorts of things.

[Prof Peter Collignon]

So your previous immunity does protect you. But I think one of the issues is if a infection is mainly mucosal and I think covered usually is, you know, it's nose, throat, some people it invades get down to the lung immunity by vaccination is nowhere near as protective because the vaccines we give give you good T-cell responses and antibodies, but don't get to your mucosa.

[Prof Peter Collignon]

And so I think for a lot of respiratory infections predominantly aren't invasive or systemic. You have systemic side effects like fever, but they don't probably in the vast majority of people if they then having systemic immunity is not going to be the answer. And that's probably the problem for whooping cough as well. The whooping cough vaccine is one of our least effective vaccines as well.

[Prof Peter Collignon]

So I think for a whole lot of respiratory viruses, we're going to have to end up coming up with a better type of vaccination that gives you mucosal immunity because that's where you stop the initial replication of the virus, which actually stops your symptoms and also stops you giving it to others. That's where I think we need a lot of research because it'd be good if we didn't spread these viruses around to people all the time.

[Prof Peter Collignon]

And I think it needs are probably going to need a different approach because it's how do we stop mucosal replication rather than the systemic effects of a bad viral bacterial infection?

[Dr Lawrie Bott]

You mentioned masks with the recent change, public health change in wearing masks in airports. They want people to wear masks on the flights, not the airport. Do you think that mask wearing is a practice that we should take forward into the future as a good public health measure, generally with respiratory viruses?

[Prof Peter Collignon]

Yes, I think we should, because I think masks give both protection to the wear and to others. Now, there's two issues here. A mask, mandates don't seem to work very well, at least on epidemic curves. But for an individual, I think you do get protection from masks. I mean, you probably wear the surgical mask, get a 15% reduction in your risk.

[Prof Peter Collignon]

Now, that's much better than nothing. And I think, you know, there's a lot of studies that now show that there was a good study in Bangladesh, one in Denmark. You know, you can argue about statistical significance. And there was another one recently. And plus all of it implies you get a ten or 20% personal protection. And there was another study done at Westmead in the early 2000s that looked at the families with children that were sick and gave them masks.

[Prof Peter Collignon]

And what was interesting, if you wore the masks, you got an 80% reduction in infection rates from your children. The problem was people didn't wear masks. So even when you get highly motivated, people in a high-risk population you had less than 50% compliance after three days. So essentially my short answer is I think masks to protect you.

[Prof Peter Collignon]

But if you're going to find people and mandated, you might be able to do it for a short period of time, weeks, but you can't do it for years. So I think we need a cultural change that people first of all think it's unacceptable to come to work if you're sick. But secondly, if I've got an infection, I'll wear a mask because I think that stops you disseminating your or decreases your risk of disseminating to others.

[Prof Peter Collignon]

So there is even in the home, you know, it may be worthwhile. And I think we should definitely not frown on people wearing masks because I think that's a sensible thing to do if you're at risk or want to decrease your risk. So I think we need a culture shift to get more like the Asian view of masks, you know, who wear them for various reasons.

[Prof Peter Collignon]

Because I think it does decrease your personal risk and your risk to others. But I don't think we should mandate it or find people because I don't think you get this convincing evidence it makes a difference on a population level over a period of time.

[Dr Lawrie Bott]

Should health care workers, including doctors, wear masks?

[Prof Peter Collignon]

If you look at influenza and even COVID probably less than five or 10% of the infections come from health care workers. And there is at least one paper I saw that showed that if people wore masks all the time, they were perceived as having a lot less empathy and communication with the patient. So infections aren't the only parameter we should look at.

[Prof Peter Collignon]

We've got to look at health care as a whole. And balance, you know, the good versus the bad. So I don't think even in countries that wear masks a lot, doctors don't necessarily wear masks all the time. It may be during high risk times. You know, if you have an influenza epidemic that usually goes for about four to six weeks, it may be four to six weeks.

[Prof Peter Collignon]

People should wear masks. And I think the other thing that's really neglected is hypertension. I've been involved in a couple of papers over protection, and I might say this dates back to 1919 some of this data. But if you protect your eyes you have a markedly decreased risk of getting infection with COVID and with influenza. We did a meta analysis with a group from the Gold Coast Bond University and it showed on the

published studies if health care workers were I protection official on top of the mask they had a 50% extra reduction in infection.

[Prof Peter Collignon]

And you can see why the eyes are important. Your eyes are open all the time, somebody coughs or sneezes deposited in your eye and it goes straight down your neck. Nice. I like thermal duct your nose. Well, the nose is where most of the infections seem to occur. The volunteers they got in England to be infected with COVID, it was all nasal infection where it started.

[Prof Peter Collignon]

Now some people get it going down to the lab, but anything that positive your nose is a bad idea and your eyes depositing your nose.

[Dr Lawrie Bott]

Yes. Fascinating. So, Peter, what is the main take home message for everyone this winter?

[Prof Peter Collignon]

Well, I think the main take home message is you need to protect yourself as much as is practicable. You need to do yourself, your best yourself, not to give infections to others, family members, friends, people in the community. And that means apply common sense. I think hand hygiene, you know, respiratory etiquette is ongoing important, including the use of masks in some situations.

[Prof Peter Collignon]

I think it also we should be thankful the pathology can give us such good and accurate answers so quickly because if anyone gets seriously ill, that's essential to now give them the right management stream with the right drugs, the right support to give them the best chance of getting better. So there's lots of things that I would do for the general population obviously get COVID vaccinated for the 3% of adults in Australia who aren't, you know, please change your mind, get vaccinated, avoid as many infections as much as you can yourself and avoid as much you can giving it to others.

[Prof Peter Collignon]

But from a pathology point of view, I think we should be very grateful that we've got such great facilities in pathology to give accurate and rapid diagnosis to people. That makes a huge amount of difference for their outcomes in hospitals and when they're seriously ill.

[Dr Lawrie Bott]

And eat alfresco whenever you get the opportunity.

[Prof Peter Collignon]

Well, the other thing is as much as possible to decrease your own risk outside air is protective. I'm about to get a paper published that shows something called Outside Effect is outside. Ian's got factors in it to kill viruses and bacteria this seems to be controversial and the future. Why? But there's no doubt mighty because of dilution. If you are outside, you are much, much less risk of getting COVID I mean, you decrease your risk by 95%.

[Prof Peter Collignon]

That's better than any drug or immunisation we've done. So the more you're outside and not inside, the safer you are. So do that as much as possible. But it could be in Australia where we've got even in winter, great weather. So we've got a lot of things on our side in Australia that can decrease our risk by doing the things we enjoy. So do more of that.

[Voiceover]

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