

# COVID-19 update from Dr. Allen

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We have not had a positive case of SARS-CoV-2 so far in Walcha. However, there are positive cases in Armidale, Tamworth, Uralla and Gloucester.

Robust large medical studies on the virus to date are non-existent. Only small studies with uncertain conclusions have been done so far. I expect by the end of this month we will have more reliable information out of Europe and America.

What follows is a brief summary of some topics, which may be of interest:

## Transmission

Of the three modes of transmission (contact, droplet, aerosol) droplet transmission is the most common by far.

- contact transmission is by touching contaminated surfaces
- droplet transmission is direct contact with sputum, respiratory droplets and possibly blood
- aerosol transmission is breathing in airborne viral particles. It is believed that this will not occur outside of 2 metres, unless the infected person has a very large unprotected sneeze. This is what the current talk of expanded mask wearing in America is about.
- virus droplets on surfaces can be inactivated within 1 minute by surface disinfection with 62%-71% ethanol, 0.5% hydrogen peroxide or 0.1% sodium hypochlorite
- there is a difference between how long a virus is detected on a surface and its infectivity rate. It can be on a surface but not necessarily be infectious. This is still unknown
- the virus that was detected on the Diamond Princess several weeks after the last passenger left was in fact dead not live virus
- UNSW study published in Feb 2015, involving 26 students, they touched the face on average 23 times each hour. In 44% of these, the mouth, nose or eyes were touched (36%, 31%, 27% respectively and 7% were a combination). That's a lot

## Treatments

There are a number being tried around the world.

- Hydroxychloroquine (Plaquenil) is used most often for rheumatological disorders.
- There is a small 62 patient study out of China which showed some benefit in its use. About 2,000 patients had been treated with it in New York and Michigan mid last week.
- The latest results on 27th March of a study from France on the use of hydroxychloroquine and azithromycin involving 80 patients reported a significant reduction in viral load (83% of them had negative results on PCR testing at day 7 and 93% by day 8). Again, small numbers and there was a lack of a control arm. And these weren't hospitalised patients i.e. not too sick. We will know the answer as numbers grow. It would be interesting to see any research undertaken down the track assessing if those taking hydroxychloroquine every day for another reason have a lower burden of disease i.e. morbidity/mortality rate
- Azithromycin is being used at times in combination with hydroxychloroquine. It is an antibiotic that is used to treat some bacterial pneumonias. This can complicate viral pneumonia when your immune system is stretched.
- Convalescent serum/donated plasma from those recovered from Covid-19. This is an old treatment known for over 100 years and has been used in this way in the past and more recently tried with SARS-1 and Ebola. This is now getting underway in New York and France and was used in China
- Antiviral medications e.g. remdesivir (being used in an ongoing DISCOVERY trial involving 3,000 patients with severe disease in Europe)
- monoclonal Abs, Interleukin-6 receptor inhibitors and a few other things are being looked at or are in Phase 2 trials
- antibody rich blood products - again from recovered patients

But of course, the main way your body gets over this is using its own immune system. The ventilators are to give your lungs help if it is needed until you beat the virus yourself.

## Vaccines

When we get past the peak of symptomatic infection, there will be a long tail. There will be asymptomatic carriers, so the risk of infection will not disappear, rather it will be reduced. The roll out of a vaccine needs to occur to get the best control.

- About 35 academic institutions and companies are working on a vaccine around the world
- The country where the vaccine is developed first will obviously benefit as it will be the first to have it deployed
- It realistically takes 18 months for a vaccine to be fully assessed to meet regulatory standards i.e. mid 2021
- CSIRO is testing two vaccines now. First results from animal tests could be as early as June
- University of Queensland scientists have started pre-clinical testing of another type of vaccine
- A team at the University of Pittsburgh School of Medicine has developed a vaccine that is now being tested in mice. They had a head start, as they had previously worked on other coronaviruses SARS and MERS and they share a similar 'spike protein' which is important to induce immunity against the virus. The vaccine did produce a surge of antibodies in mice within 2 weeks. However, as it is only recent, it is too early to say whether and for how long the immune response will last. A trial in humans is expected to start shortly.
- Vaccines may have a part of the dead virus attached to something that will stimulate the immune system to recognise and attach to any molecules that resembles the contents of the vaccine, tagging the virus for destruction by white blood cells.
- Another type of vaccine being trialled aims to trigger antibodies that will attach to the receptor of the spike protein and thus disable it from binding to the host target cell (ACE2) in our body that then leads to infection
- Vaccines with other modes of action are being tested that stimulate the immune system in different ways

## Testing

The more we test those with appropriate symptoms, the more effective we can be in treating the pandemic.

- We are doing a pretty good job now in Australia. The guidelines have been expanded to include those with fever with any of shortness of breath/sore throat/cough.
- The number of Covid-19 PCR swabs tests now being done in Australia is pushing labs a lot. They are now not doing PCR testing for other problems as they are overrun.
- There is a new blood test that just arrived. But one needs to be careful in its interpretation. A positive result will tell us you have been infected.

But as it can take more than a week to develop antibodies (or as little as 1 day), a negative result does not rule it out in the acute setting. Swab PCR results are more accurate in the first 5 or 6 days of the illness but then antibody results become more reliable. There is a role for doing both tests at the same time to improve the sensitivity of the overall result. Furthermore, an antibody test by itself will not tell us if you are still infectious towards the end of the illness.

## Masks

This is topical at the moment, as the CDC in America has now recommended its citizens use cloth masks, scarfs etc (not medical masks, which are in short supply). This is an example of changing advice that can confuse.

- The evidence shows wearing a mask outside health care facilities offers little, if any, protection from infection, as the chance of catching Covid- 19 from a passing interaction in a public space is minimal.
- Masks are needed if you have close contact (face to face) with an infected individual for at least a few minutes. NSW Health says 15 minutes. Ignoring the debate about time, the main point here is, if you are not face to face your risk is low.
- This is about aerosol transmission. Very low risk in public but it is true if you did get in the way of a large unprotected sneeze, you could be infected.
- Hong Kong, Taiwan and Singapore have low transmission rates. Their citizens adopt mask wearing spontaneously. Of course, their other measures of strict quarantining, school closures, contact tracing and maximising testing are highly significant. Japan, also mask wearing society, apparently hasn't tested much and their infection rate is low. The interesting place is the Czech Republic, who have mandated widespread use of masks. As of 31st March, there had been only 24 deaths and 3,002 known positive cases. These numbers do not tell us much about transmission rates as it may be early in the country's infection, but it bears watching (and I notice the death rate is very low at about 0.8%)
- I think wearing a scarf/cloth mask does have one thing going for it if the pandemic increases significantly. The benefit of a mask is that it automatically makes us THINK ABOUT NOT TOUCHING THE FACE.
- Of course, you have to be used to wearing a mask. You never touch a mask, including putting it on and taking it off, without washing your hands first. Never go near your face without washing your hands.
- So, I believe it is not time to wear masks in public. I would consider this issue again if we get more than several cases in Walcha.

## Prevention

I've covered this before but there can never be too much focus here. As noted previously will be a long tail once we have passed the peak.

Our particular risks are the virus is shed 1-3 days before symptoms appear in an infected person and some who get mild Covid-19 and recover will continue to shed the virus for a time after symptoms resolve.

It is also possible there will remain some super spreaders in the community as they will be carriers.

So, for now it's important to continue to:

- stop handshakes, touching others, keep 2 metre distance
- stay at home, especially if you are in a vulnerable group
- cover coughs and sneezes
- disinfect surfaces such as doorknobs, benches, desks, tables, handrails regularly
- increase ventilation by opening windows
- understand each of you has almost complete control in stopping getting infected. Clean your hands regularly. DON'T TOUCH YOUR FACE without cleaning your hands first= the most important message. If you do this, you almost certainly won't get infected.

Riverview hostel is now closed from outside to all except staff, apart from compassionate circumstances. Thanks to everyone for their understanding. The hostel in Sydney has now had five fatalities.

At the local surgery, we are now seeing patients with respiratory symptoms only outside the building. We continue to limit consultations in the rooms and deal with most issues over the phone. It is stop gap medicine but we can all make do for now. Coronavirus has motivated our setting up a Facebook page for the surgery, where we put a few things up from time to time that I feel are worthwhile. Flu vaccine clinics have started and are occurring at John Oxley oval.