

About myself:

Chandini Raina MacIntyre (MBBS Hons 1 USYD, FRACP, FAFPHM, MApp Epid, PhD) am a researcher in infectious diseases and vaccinology and NHMRC Principal Research Fellow, Kirby Institute, UNSW. I bring to my research the combined expertise of clinical medicine, public health, and field epidemiology, with extensive experience of outbreak investigation and control. I also worked at NCIRS for 15 years so have deep knowledge of vaccines. My PhD research included research on testing and contact tracing for TB. I have over 400 peer reviewed publications in infectious diseases and have led the largest body of clinical trials on face masks and respirators in the world, and this work is cited in all major PPE guidelines including WHO, CDC, and most countries. I have over 20 years experience in pandemic control and vaccines and led the first national modelling initiative in Australia from 2005-2010, which was the first time modelling was used to inform the pandemic plan. My vaccine research includes RCTs of vaccines and research on vaccines in people with weakened immunity. I am on the Executive of OzSAGE. I was on a US National Academies of Science, Engineering and Medicine committee on PANDEMIC PREPAREDNESS AND RESPONSE. I am also on a WHO technical advisory group for COVID vaccine composition.

NSW Government's management of the COVID-19 pandemic**Overarching comments:**

Going into the pandemic, NSW has a well-resourced health system and excellent public health expertise. The pandemic has resulted in a health system crisis – a crisis in health workforce and sustainability, which will affect NSW into the future.

In NSW, as in Australia, and in many parts of the world, there has been a vaccine-only strategy followed by surrendering to the pandemic. The vaccines are very effective at protecting against severe disease and death, but two doses are barely effective against symptomatic infection with Omicron. To go forward and have health and economic success, we need to address safe indoor air and use additional mitigation measures like an efficient test and trace system, masks and ventilation. COVID is never going to be endemic. It is an epidemic infection and will continue coming in waves until we have a sterilising vaccine. Such a vaccine that does not wane is unlikely for this virus.

NSW lifted all mitigations on December 15th with extremely low 3rd dose vaccine rates, knowing that 2 doses barely protects against symptomatic Omicron; and with children unvaccinated. At least NSW should have waited until we had 80% 3rd dose rates and full vaccination of children and retained high test and trace capacity, QR codes and mask mandates until then. Providing high quality masks like N95s is happening in other countries, including the US, and [will improve the situation](#). Providing and retaining those things long term do not impinge on freedom and will bring the best economic outcomes for NSW.

If you don't stop transmission, you don't stop illness and death or the emergence of new variants. There has been a lack of ambition in the pandemic strategy in Australia – the lowest possible bar has been set, with prevention of deaths the most ambitious goal. But the pandemic is not a binary of dead or alive. There is long COVID, which has decimated workforce in the UK and the US. The virus has not mutated into the flu or a cold, and it is not like flu. It kills heart cells, it invades nearly every body organ, including the brain – post-mortem studies show the virus persisting in almost every organ long after the acute infection. Survivors have shrinkage of the brain on CT scan, a drop of 7 points in IQ, loss of myelin around nerves, and pathological changes in the brain similar to Alzheimers. We may well be facing an epidemic of chronic COVID-related cardiovascular, respiratory and neuro-cognitive illness. This matters most for our children. We must use all available tools to

mitigate spread. That includes masks, test and trace, ventilation and safe indoor air – none of these things impinge on freedom. The virus spreads through the air we breathe, so we cannot recover economically until we address that. Small business, big business, all will be hampered if we do not address this. It was not addressed in hotel quarantine. The air flows under the door and into stagnant air spaces like corridors. You do not need contact to get infected. You just need to inhale the contaminated air.

Workers Compensation Amendment Bill

This amendment should not be made. It would overturn decades of gains in WHS, and removes all onus on employers to keep employees safe by addressing ventilation.

Safe Work NSW – WHS

Given the amount of workplace transmission, why has SAFE Work NSW not stepped up? It is an internal conflict of interest because both SAFE Work and NSWHS are government departments. In Victoria, the government reported on HCW and ACW infections during the 2nd wave and attributed correctly (after having started by saying they caught in in the community). This has not happened in NSW. We have no data, and the data that are provided show most HCW infections are classed as “source of infection unknown”. There are inherent biases in attribution, which must be done independently and transparently.

Health system and health workers:

The health system is not able to function properly, with staff burnt out, sick or furloughed, long backlogs in elective surgery and patients at risk of getting infected when they come to hospital for other reasons. Care of other conditions are affected including ambulance call out times. Health workers have been let down badly in NSW and across Australia, denied proper PPE. NSW was the last jurisdiction to change guidelines on HCW PPE to be appropriately precautionary. The national ICEG denied airborne transmission for 18 months and changed when the Delta wave started. NSW CEC dug in for longer, and even after guidelines changed, many HCW on the ground were denied respirators. There has been no reporting on HCW outbreaks but in following news and press conferences, outbreaks occurred in HCW on general wards where only surgical masks used in multiple NSW hospitals. Infection and furloughing of staff exacerbated workforce crisis. During Delta and worsening during Omicron, hospitals have been unsafe for staff and patients. Many patients coming in with other conditions got infected and never came out.

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Delta

The Delta epidemic started in June from a failure in international borders ring of steel – drivers of international arrivals had been missed, and had never been told to open their car window to improve ventilation. The vaccination rates were 4% in NSW when the Delta epidemic started, with Delta being at least twice as severe and more likely to kill you than previous variants. So the race that was not a race suddenly became a race. All resources were poured into containing the epidemic in the Eastern suburbs, including diverting vaccine destined for far west NSW to Sydney.

Rural NSW and Aboriginal communities

So as Delta spread across greater Sydney and to country areas, Wilcannia was left a sitting duck with 7% vaccination rates. Country NSW suffered, with much lower health system reserves than Sydney. Dubbo was bed blocked and so were major Sydney hospitals. So smaller hospitals or towns without hospitals were stuck with nowhere to send critically ill patients. Australia is not like Europe in that we have vast distances, making people in rural and remote regions much more vulnerable in a pandemic and less likely to be able to access care when needed. Aboriginal communities are the most vulnerable. See the testimonial below from a rural NSW doctor.

Deaths at home

Even in Sydney, hospitals were overwhelmed, and many people were managed at home. During the Delta wave, NSW Health reported **deaths at home** until about October 2021, and we counted about 36 deaths at home from June to October. There were people in their 20s, 30s and 40s who died at home and the average age of people dying from COVID at home was around 40 years. About half were in hospital-in-the-home programs. At any other time, this would have been a national outcry. Why did these people die? Did they try to call an ambulance but could not get one on time? Were they unable to get admitted to hospital? What process was used in hospital-in-the-home to monitor risk of deterioration or death? During the Omicron wave there has been no reporting of deaths at home, but the number of deaths per day was unprecedented in January and February, hundreds every week in NSW. It is important that the data on outcomes of COVID be analysed transparently and, be made publicly available. We need to know age, location (rural or urban), vaccination status, number of vaccine doses and place of death – hospital or home). We need a formal inquiry into deaths from COVID so we can identify contributing systems factors and help prevent deaths in future waves.

Omicron

When Omicron emerged in November the NSW government stuck to the roadmap, despite circumstances having changed, and by many reports, against the advice of the Chief Health Officer. Dropping mitigations on Dec 15 when we had >1300 new cases that day was a mistake. On the one hand a decision to let it spread, but there was no planning for the consequences.

Collapse of test and trace

There was no planning for testing or for supply chains, when all modelling showed there would be a huge surge. Testing collapsed in December, right when it was needed the most for safe Christmas and NY celebrations. Testing and tracing are key to control of SARS-COV-2, and both collapsed by December 2021. Instead of attempting to strengthen these, they were weakened further by removal and flip flopping on QR codes, and severe restriction of access to PCR with RATS unavailable or unaffordable. Collapse of Testing means true case # unknown. The only valid trends are hospitalisations. As a result of the collapse of COVID mitigation through test and trace, businesses suffered and hospitality was hit hard with mass cancellations for New Years Eve.

Case numbers do matter – cases beget hospitalisations and deaths.

Deaths

The death rate in 2022 is massive and unacceptable. The Granville train crash was called a disaster because 83 people died that day, but here we are barely reacting to 100s of deaths a

day, every day. So much could have been done to prevent deaths. There is substantial room for boosters and full vaccination of children 5-11 years, provision of high quality masks, expanded, free and easily accessible testing, contact tracing, support packages for those in most need, improved and sustained community engagement and communications during the public health response and provision of safe indoor air.

Supply chains

There was no planning for the effect of mass workplace absenteeism on supply chains. This is something that anyone with expertise in pandemics know – that when absenteeism rates soar above the business-as-usual rates of 2-5%, to 20% or higher, critical infrastructure is threatened. All of this could have been prevented by acknowledging that case numbers matter and simple measures like QR codes, masks and safe indoor air could keep case numbers low enough to avoid mass absenteeism.

Long COVID and workforce

Long COVID is a grab-all term for a range of chronic effects of SARS-COV-2, which includes heart failure, respiratory failure and deterioration of brain function. All of these can cause fatigue. The UK and US are already seeing [substantial loss of workforce](#) due to long COVID.

COVID-19 and kids

Children were sent back to school essentially unvaccinated with 10K cases a day. The Federal government failed in making vaccine available for children in 2021. It is true that children get mild infection compared to adults, but some children require hospital and ICU care, and some children die from COVID-19. This becomes more apparent during large epidemics. The sheer number of infections with Omicron when schools open there will be a substantial number of children in hospital and dying.

Based on the NCIRS report children's hospitalisation rates were about 2% from the early Delta period of June-July when many schools were closed or partially open. This may not sound high, but it will translate to substantial numbers as the infection spreads through unvaccinated children. Healthy children are at risk. Of children with severe illness a US study showed that 65% had no chronic underlying illness. Among those needing ICU (841), 38% had no chronic conditions. Available data on Omicron show higher rates of hospitalisation and death in children compared to Delta.

With SARS 1, if you survived, your body went back to normal. This is not the case with SARS-COV-2, with a substantial residual illness and future chronic disease burden likely. It is too soon to know the chronic disease burden that COVID will cause in children, but we know the virus attacks many organ systems, including the heart, vascular system and lungs. This is all the more reason to be precautionary about protecting Australian children.

Let's put COVID in children in some context with other infections. In the US, in one of the worst recent influenza years, 2017/18, 186 children died of flu. During the COVID pandemic over 700 children have died in 18 months.

The statement that COVID is mild in most children is true, as it is for polio. Polio is mild or asymptomatic in 99% of children. Only 1% of children become paralysed, and we consider this unacceptable. At the peak of polio in Australia, we had 357 deaths in 1951. Now, 70 years later, we still protect children against polio.

From 1956-1975 we had 356 deaths from measles in Australia. That's less than 20 deaths a year, and we think it's worth protecting children from measles.

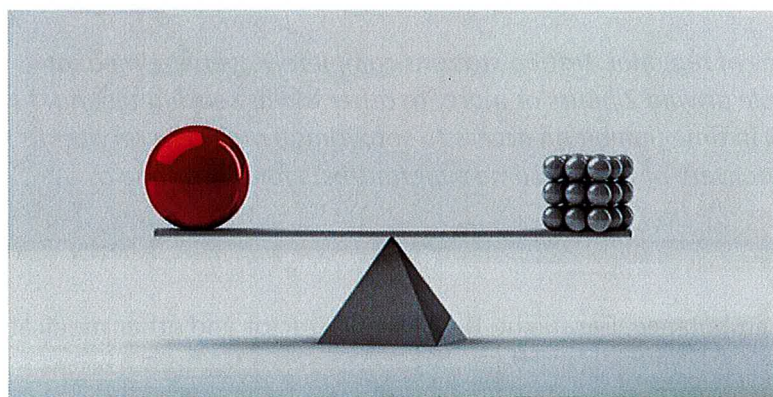
With whooping cough, it was 290 deaths a year between 1910 and 1942.

Why would we accept 114 deaths from COVID in children (which is the conservative estimate from the Doherty report) and many more critically ill children who need hospitalisation? For babies too young to be vaccinated against pertussis, we cocoon them by vaccinating adults around them.

To be consistent with the high value we place on protecting the health of children against other infections, for children who are going back to school and unvaccinated, we must do all we can to protect them. That means ensuring they have safe indoor air, widespread accessibility to rapid point of care testing, vaccinating parents and teachers, designing classes in such a way to reduce risk of infection and masks for children and teachers. Yes, some children will have trouble wearing a mask, but most won't, as seen in other countries.

Long-term we need ventilation and vaccine-plus to live with the virus and avoid a cycle of instability.

The control of COVID is a balancing act. [Imagine a set of scales](#), with the virus on one side and a suite of public health measures on the other. (Image from The Conversation)



The red ball is the virus, the silver balls above are vaccination, ventilation, masks, contact tracing, testing, movement restrictions and other measures. We know that vaccine alone, with what we currently have, is not enough against the virus.

Vaccines remain the exit strategy, and we will have better vaccines, better dosing schedules and better options in the future. There is a lot of hope for a vaccine-based exit strategy in the future, but for now we also need extra measures to maintain an equilibrium with the virus.

We must improve testing and tracing capacity and retain mask mandates. We need widespread availability of rapid point of care testing, ideally free or subsidised – the more accessible it is, the better we can control it. We must understand this balancing act to live freely, as we increase mixing between people, we give the virus the opportunity to spread. That must be counterbalanced on the scales by increasing other measures like contact tracing, testing and masks so that we can have equilibrium rather than a boom or bust cycle of instability and recurrent pandemic waves. The [OzSAGE advice documents](#) provide more details on these strategies including testing, masks, tracing, rural health, Aboriginal health and schools.

Testimonial from a NSW rural physician

The probs with the metropolitan experience were amplified in regional.

Of the 24 deaths announced today by NSW, 14 were from regional NSW- a substantial higher proportion for the population. (I can try and calculate more days if that is useful)

From the OzSAGE advice on regional, rural and remote

https://ozsage.org/working_group/regional-rural-and-remote/

Risks for rural, regional and remote health include:

- Significant outbreaks in rural, regional and remote communities in the setting of reduced testing capacity, primary care and hospital services, lack of appropriate safe air ventilation, fitted N95 masks and other controls.

We have seen multiple examples of regional testing stations completely overwhelmed, at capacity on opening, with people driving 2 hours or more to other towns seeking testing stations. Unable to process PCR in time (inhibiting access to sotovrimab and HITH services) No RATS well documented. No delivery of food to some supermarkets for more than a week.

- Threat to the provision of air ambulance, Careflight, Royal Flying Doctor and other medical evacuation services.

Some patients delayed many days to be transported

- Impacts from sick leave of pilots, medical, nursing, administrative and engineering staff, and other ground support including pickup crew, refuelling provision and maintenance.

Not sure about this one. Worth messaging Dave ?

- Capability to deliver services decreases as increased time and resources required for transport of patients with suspected or confirmed Covid-19 infection.

We stopped "streaming" patients to bigger centres for COVID and non-COVID conditions. We were unable to accept patients with serious non-COVID conditions from smaller rural as we had no beds/staff

- Collapse of community medical services due to service overload and exposed healthcare workers becoming sick or quarantining as close contacts.

Primary services closed. Overwhelming demand on ED due to primary care collapse. Overwhelming demand on ambulance services (e.g XX- 45 minutes of CPR at home, ambulance came from another town) . e

- A collateral impact on non-COVID-19 medical services such as maternity services, paediatric services, cancer services, screening programs, cardiovascular services and trauma and emergency care.

Eds overwhelmed- converting theatre space into ED

ED staff, maternity staff doing exhausting hours at unsafe ratios

Regional ED beds closed

Wards closed due to furloughing

Other medical specialty beds closed due to furloughing

Collapse of community services e.g. palliative care and mental health services

Stopping of elective surgery by health orders but prior to that entire theatre depts furloughed (Lismore)

Pts waiting days to be seen in hospital (Port Macquarie)

Unable to transfer pts to private hospitals due to lack of private hospitals, lack of staff including junior doctors to work across 2 campuses (there was a shortage pre-COVID)

Some towns without GPs on weekends trying to manage COVID cases and unable to transport out

Unlike metro there are no services down the road to send people to either in acute setting or community.

- Border towns where the closest hospital is interstate may have less access to care for COVID and non-COVID care, if border restrictions are in place

N/A

But border towns in Nth NSW and along Murray impacted by visitors

- During holiday periods, non-metropolitan populations swell to large numbers due to out-of-town holiday makers thus placing additional demand on health services.

Christmas/NY was a perfect storm as we predicted of seasonal reduction in services, annual leave for health staff, planned closure of testing stations, primary care closures and a surge in visitors and residents returning from Christmas get together. Relaxation of restrictions in mid-December when omicron was known to be coming, was a major failure in health policy., especially for regional NSW.

Key points from a Sydney doctor working in a major public hospital

1. Transparency and accountability: *Early in the outbreak HCW were actively dissuaded from wearing PPE in the Health care Setting (apart from direct COVID care) - it was apparent that at that time there was a shortage of PPE but this was never openly communicated with staff. Some forms of PPE ran out and staff resorted to making their own face shields for instance. These shortages were never openly acknowledged by Ministry leaving staff uncertain and fearful. More recently there has been a clear dichotomy of what is being experienced on the front line staff shortages, increased acuity, increased overtime- i.e. an unprecedented burden of clinical duties on an exhausted health care staff. On the other hand, public messaging of a "robust" health system with ample capacity has occurred, leading to further distress from HCW whose lived experience is vastly different from public messaging. Increased work duties from front line staff should be met with financial recognition in the form of penalty rates for the excess work they have contributed during the last two phases in particular- many staff cancelled long awaited leave to manage the Omicron outbreak.*

2. Delays in mitigating of airborne spread. *Even at this stage of the epidemic the role of airborne spread of SARS-CoV -2 is not properly appreciated and mitigated as evidenced by a recent communication from the ministry - this has placed staff and patients and unnecessary risk. there has been overemphasis on fomite spread with surface cleaning and inadequate attention to clean air.*

3. Use of and infection control paradigm as adopted to a OHS construct for dealing with Health Care Worker Safety

4. Planning and competencies- *between phases there has been a rapid return to business as usual with resumption of elective surgery etc. The current system lacks redundancy and there have been missed opportunities between outbreaks to train staff in relevant competencies to deal with future outbreaks. Staff shortages have been acutely felt in critical care areas- it would be a strong recommendation to factor in staff training in future rosters and reward staff who develop and maintain skills in areas required to deal with future outbreaks (clinical, contact tracing etc)*