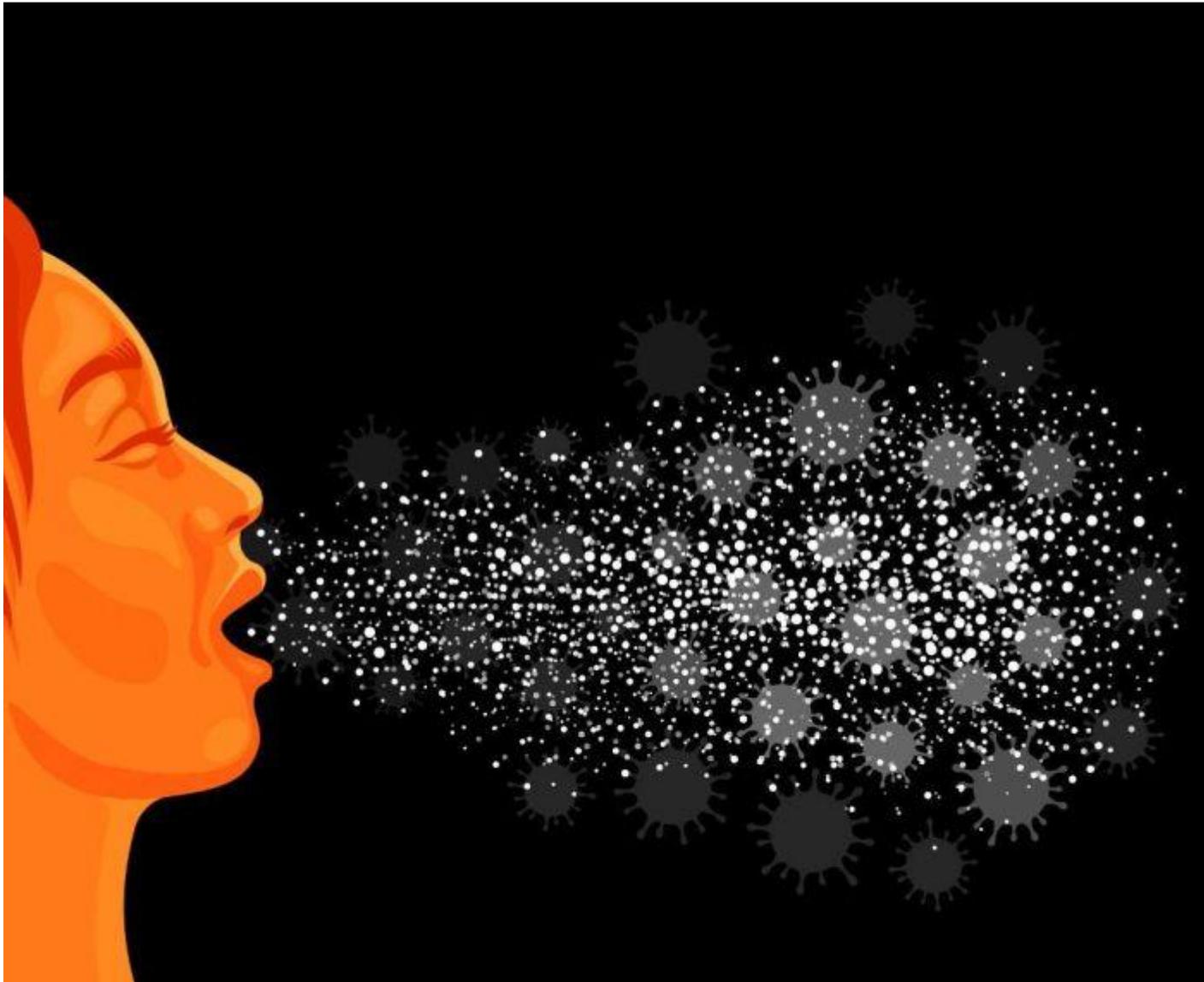


WHO says it can't rule out airborne spread of COVID-19, so what does this change?

[ABC Health & Wellbeing](#)

By health reporter [Paige Cockburn](#)

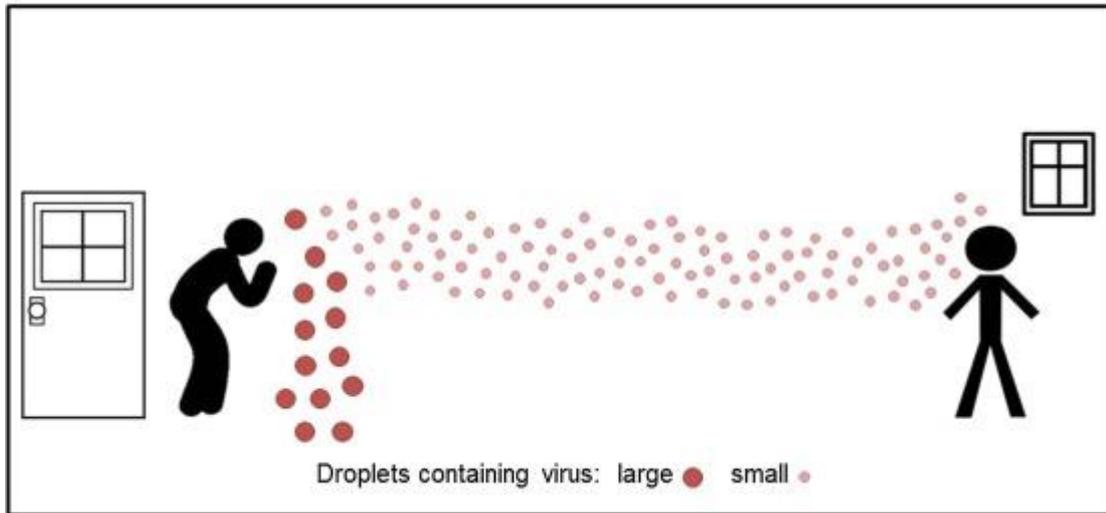


When it comes to aerosol spread, masks are even more important in poorly ventilated spaces. *(Supplied: Getty Images)*

After an urgent plea from hundreds of scientists, the World Health Organisation says it "cannot rule out" the risk of coronavirus spreading through the air in some indoor settings and has issued new advice.

[In its most definitive statement on COVID-19 spread to date](#), the WHO has acknowledged the possibility that outbreaks in choirs, restaurants and fitness classes around the world were the result of some aerosol transmission.

"In these events, short-range aerosol transmission, particularly in specific indoor locations, such as crowded and inadequately ventilated spaces over a prolonged period of time with infected persons cannot be ruled out," the statement said.



There is growing evidence that small droplet (airborne) transmission is a significant route of infection indoors. (Supplied: *Airborne transmission of SARS-CoV-2* By Lidia Morawska)

Until now, the WHO has maintained that the large respiratory droplets we produce when we breathe, talk, cough or sneeze are our number one enemy. These droplets fall to the ground (or surfaces) quickly.

But coronavirus can also spread by the much smaller aerosol particles we produce during exhalatory activities, such as when we cough or sing, and these can [remain suspended in the air for hours and travel up to four metres](#).

"The original statement by the WHO that [COVID-19] is [only] spread by droplets and contact is not based on any evidence at all, they just pulled that out of a hat and said it, and then anyone who tried to say any differently was held to a different standard of proof," says biosecurity expert Professor Raina Macintyre from the University of New South Wales.

Air quality and health expert Lidia Morawska of the Queensland University of Technology was one of 200 scientists who [co-authored a letter to the WHO this week](#) urging them to take aerosol transmission seriously.

The time for shoulder shrugging is over and some simple precautions must be implemented, Professor Morawska says.

So what needs to change?

Growing evidence about airborne transmission tells us that some indoor spaces may be riskier than we originally thought, in particular ones involving crowds or where there is limited fresh air flow.

This means one thing — **ventilation is critical**.

At home this is simple, **open more windows and doors** when you have people gathering in one room or better yet, **gather outside**.

"As long as you're at a reasonable distance, the risk is basically non-existent [outside]," Professor Morawska says.

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But if you're inside, there will be some guesswork involved to judge just how well ventilated your home is.

"We don't know how much ventilation it takes to remove the virus, but basically the higher the ventilation the better," she says.

"If you can feel the air is flowing around you, that's a good sign."

Given the likelihood of transmission at home, we need to think about the **air exchange in the rooms where we spend most of our time**, says Guy Marks, an epidemiologist and respiratory physician at the University of New South Wales.

And remember, the average adult takes between 12 to 20 breaths per minute, so it doesn't take long to really get a kind of "aerosol cloud" going.

"If people are in a room and it's all sealed, the air won't change, it just sits there so anything you emit from breathing, coughing, whatever, just stays in the air," Professor Marks says.

"Open windows or doors — the air is changed."

Air conditioners: friend or foe?

Air conditioning can be a good way to mechanically ventilate a space if you can't open windows or doors.

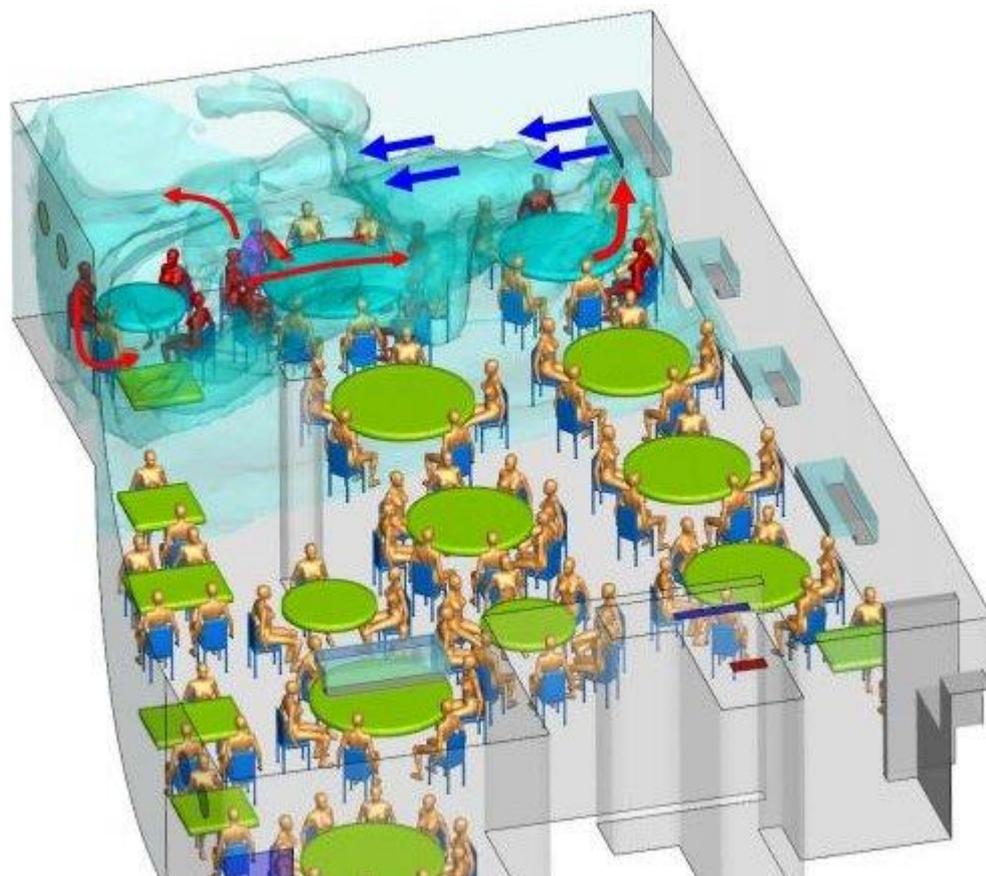
But there is one condition — it **should not be used on the recirculate setting**.

"Otherwise there's the potential that those aerosols will just keep being dispersed through the air-conditioner over and over," Professor Marks said.

But while air conditioners are good for ventilation, they introduce another problem: **direct air flow**.

If multiple people are sitting under an air-conditioner and one has COVID-19, the direct flow of air from the unit can create a loop of infected aerosols over everyone.

This diagram shows the mini weather-system created by an air-conditioner at a restaurant in China where a COVID-19 outbreak was recorded.



The three families were sitting within the blue cloud of aerosols. (Supplied: medRxiv)

[Research yet to be peer-reviewed](#), concluded a "recirculation envelope" formed over three families' tables, which were in the direct line of one air conditioning unit.

Ten members of those families later tested positive to COVID-19, but no-one else in the restaurant (who sat under different air conditioning units) was infected.

"It wasn't caused by the air conditioner, it was just the fact it was a very directional flow," Professor Morawska says.

Deciphering the direction and rebounding of air from a unit is hard, even for experts, so **the best idea is just don't sit in the direct path of a unit.**

"First thing when you enter a restaurant, look at where the air conditioner is and which way will the air go and which tables will be most affected," Professor Morawska says.

Also keep in mind, fans don't help with ventilation as while they move air around, they don't remove it.

How long is too long?

If you feel ventilation is insufficient in a particular venue, or you are forced to sit in the direct line of air conditioning, **think about how long you will be there.**

The more time you spend in one space, the higher your dosage of the virus could be.

"If you are in a flow of air from an air conditioner for a short period of time, you hopefully won't inhale sufficient aerosols," Professor Morawska says.

"So it's important to change locations or let a space air out and then come back to it."

However, it's impossible to give quantitative advice about duration, it's not as simple as saying 1 hour is safe but 1.5 hours isn't, Professor Morawska says.

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How important are masks?

Masks are a hot topic right now for many reasons.

Not only has [the WHO updated their stance on the efficacy of wearing masks](#), **experts say masks are one of the best ways to stop aerosols** in their tracks.

"Masks stop the virus-laden aerosols exhaled by an infected person entering the indoor space and also protect others from inhaling it," Professor Morawska said.

Professor Marks agrees.

If you must spend time in a static environment with a lot of people, consider wearing a mask, he says.

Physical distancing is insufficient by itself in a crowded, poorly ventilated space where there is rapid air mixing, says aerobiologist Professor Euan Tovey of the University of Sydney.

The **best protection from infection in close quarters is a combination of distancing and masks** according to research conducted on the [COVID-19 outbreak on board the USS Theodore Roosevelt](#).

However, the type of mask has an effect on protection.

While a home-made cotton face mask significantly blocks large droplets, it only blocks a proportion of those tiny aerosolised particles, according to [UK research](#).

Could lighting play a role?

The scientists who wrote to the WHO also believe a type of germicidal ultraviolet light could be used to reduce the risk of aerosol transmission in public spaces like train carriages, theatres and gyms for example.

[Research by the Columbia University in June](#) found a particular wavelength of ultraviolet light (far-UVC) killed 99.9 per cent of two seasonal coronaviruses, similar to SARS-CoV-2, when present in airborne droplets.

The researchers are now testing the efficacy of the lighting against SARS-CoV-2.