

Coronavirus Covid-19: Better ventilation 'absolutely critical' to stopping Delta

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The Government faces a grilling on two unfolding crises: the recent outbreak of the Delta variant of Covid-19 in New Zealand and the Defence Force's involvement in the evacuation of Afghanistan.



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The Delta outbreak has again raised the urgent need for ventilation improvements to combat the airborne spread of Covid-19, public health experts say - and not just in MIQ facilities.

Although largely overlooked by authorities at the beginning, [scientists say](#) that aerosol transmission - or spread through the air via tiny, virus-laden particles measuring just a micrometre - has played a major role in the pandemic.

Yet public health experts argue that, despite ventilation reviews and improvements across

New Zealand MIQ facilities, not enough has been done to manage the threat.

Otago University epidemiologist Professor Michael Baker described the issue as "absolutely critical" to New Zealand's security against Covid-19.

"This is especially important in MIQ - particularly in actual isolation hotels where there are infected people - because often, you don't get a second chance."

[In a think-piece](#) published this week, Baker and Otago colleagues Drs Leah Grout, Julie Bennett, Jennifer Summers and Amanda Kvalsvig, along with Professor Nick Wilson, pointed out eight cases where ventilation had been identified in New Zealand quarantine failures.

Last September, the virus appeared to have been passed through aerosols - within just 50 seconds - during routine swabbing in Christchurch's Crowne Plaza Hotel.

Similar cases of the virus travelling from one room to another in a matter of seconds were also observed at the Jet Park quarantine facility this month, and likely also at Auckland's Crowne Plaza MIQ: the suspected ground-zero of this outbreak.

It's still unclear just how the latest outbreak occurred, but air conditioning systems at the Crowne Plaza had since been tested. .

After several cases at Auckland's Pullman Hotel MIQ in January, it was revealed that corridor ventilation was only operating for two hours a day.

As a result, changes in the ventilation system and practices were introduced.

Short-term changes at the Pullman included operating at reduced capacity to reduce congestion in shared spaces, the placement of air purifiers such as Hepa units in the lifts and corridors, expanded use of N95 particulate respirators for MIQ workers, and 24/7 ventilation in corridors.

This month, Covid-19 Response Minister Chris Hipkins said health teams regularly assessed controls and measures across facilities, which included ventilation.

"We're constantly assessing every single element of our MIQ arrangements based on what we learn and what we know about Delta."

Still, the experts said, ventilation systems of most hotels used as MIQ facilities weren't

generally built for quarantine purposes.

In June, Stuff reported that ventilation filter units had been installed in fewer than 1 per cent of managed isolation guest rooms, while nearly half of shared spaces in MIQ lacked air filtration units.

Upgrading MIQ ventilation systems might help, but they argued that New Zealand should instead move away from using hotels.

Instead, the Government could follow Australia and commission new purpose-built quarantine facilities - or "discrete" accommodation units that allowed for natural ventilation, such as cabins used at the Howard Springs facility near Darwin.

Outside of MIQ, they said improvements could also be made in schools and workplaces that employed essential workers, such as supermarkets, pharmacies, healthcare facilities and factories.

Building managers had already been advised by experts to bring in as much outdoor air as possible, to reach a room air exchange rate of four to six times per hour - more than double the rate in a typical office or school building.

"New Zealand's pre-pandemic guidelines for schools advised four or more air changes per hour, but this advice is not mandated," they said.

"It has also been recommended that in buildings that recirculate interior air, filters should be

upgraded to hospital-grade Merv 13 filters, which can remove up to 70 per cent more small particles than the Merv 8 filters that are typically used."

Failing the use of such filters, they said, opening windows was a simple approach to improve workplace ventilation.

As well, requiring all essential workers operating indoors - along with children and staff in open schools - under levels three and four could help curb airborne transmission.

"Furthermore, there is growing evidence that improved ventilation can result in a range of other benefits in the workplace environment, including improved functioning of workers on cognitive tests, reports of improved sleep, and fewer 'sick building' symptoms," they said.

"There is an urgent need for the Ministry of Health to communicate these ventilation issues to employers, unions and workers."

The ministry could also give clearer advice to possibly infected people self-isolating at home.

Rather than just telling people to "keep shared spaces well ventilated", the experts suggested the isolating person use a bedroom where at least one window could be opened for as long as possible, safety and temperature permitting, and block any gaps under the door.

"It is particularly important to have the windows open for at least five minutes before leaving the bedroom, but then to close the windows just before opening the door to leave the bedroom," they said.

"The latter is to avoid turbulent air from the bedroom moving into a corridor, as per suggestions made for quarantine facilities."

The person in self-isolation should also open windows when using any shared areas in the house, such as bathrooms, they added, while exhaust or ceiling fans - so long as they didn't blow directly from one person to another - could also help.

"Ultimately, the Government needs to be looking at all of the guidelines around interrupting transmission of the virus - particularly in indoor environments - and then revise them in light of stopping aerosols," Baker told the Herald.

"While I wouldn't say we should totally discard the one and two metre rules, but just accept

that they'll be largely ineffectual in many settings."

