

# Tackling the increased risk of contagion in schools over the winter

## The severity of the Omicron Variant

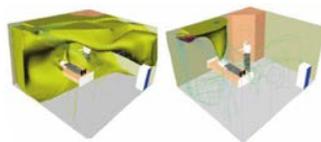
The Omicron variant of coronavirus multiplies 70 times faster than Delta in the human bronchus according to a recent study<sup>1</sup> conducted by Dr Michael Chan Chi-wai of the LKS Faculty of Medicine at The University of Hong Kong. The good news is that the study added: "In contrast, the Omicron variant replicated less efficiently (more than 10 times lower) in the human lung tissue than the original Sars-CoV-2 virus, which may suggest lower severity of the disease."

Regardless, the impact of staffing levels in your school due to sickness will be significant this month.

There is no substitute for ventilation, but air filtration and disinfection will most definitely help to reduce the risk of contagion. For example recent research<sup>2</sup> by the Department of Medicine at the University of Cambridge, said: "We were really surprised by quite how effective air filters were at removing airborne SARS-CoV-2 on the wards. Although it was only a small study, it highlights their potential to improve the safety of wards, particularly in areas not designed for managing highly infectious diseases such as COVID-19." In this instance they were using a combination of HEPA filtration and ultra-violet (UV-C) light.

## Which system to purchase?

The question every school is asking is which units should they purchase? Filtration fan speed alone (m3/hr or CADR) is not the only metric that should be considered, filter positioning is also very important.



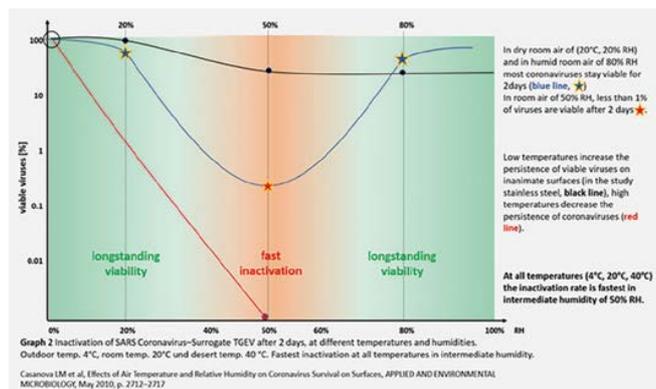
The location and height of the air filter is critical<sup>3</sup>

## 1. Location, location, location

Being able to correctly position a filter unit is critical<sup>3</sup>. In the highly contagious situation we are now in, the protection of every one of your teachers is paramount. Ideally the teacher's unit would be located between the front of the class and the teacher at seated, head height, to try and capture any aerosol droplets as soon they are emitted before they reach the teacher i.e. a unit that can be shelf or wall mounted.

## 2. How do you know the Filter system is effective?

Most filter systems simply have a red/amber/green light to indicate "air quality". Very, very few filters have integrated sensors that monitor and display the key 7 air quality parameters in real-time. You need this information to not only check that the filter is not blocked over time, but also as a tool to confirm that you have placed the unit in the optimum position. Parameters such as high particulate levels (PM2.5 & PM10) and % humidity (see graph) are key to identifying a potentially critical Omicron situation. If the system provides an e-mail alert to key members of your staff, if such condition breaches occurred, this



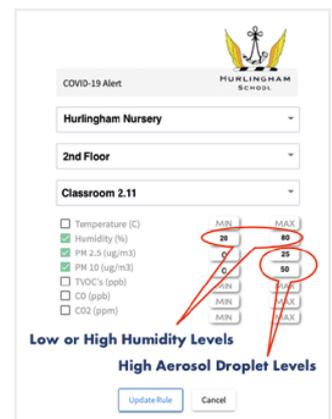
High and low humidity levels increase the viability of viruses

would be highly beneficial. Please note that high CO2 levels can only be improved by fresh air ventilation.

## 3. Legal complications

New York Attorney General Letitia James is seeking an emergency court order with Amazon in the USA regarding its COVID-19 protocols<sup>4</sup>. It is imperative that you select a system that helps you protect against litigation. One approach is to select a system that also continuously monitors and RECORDS key air quality parameters. This data can then be replayed in Court, so that the school can confirm the air quality in a classroom on a particular day and time period in the past and that the school acted above and beyond government guidelines.

The one good thing hopefully to come out of this pandemic, will be the greater awareness of the importance of air quality on student performance and productivity. A unit that has integrated air quality measurement capabilities, will serve as a useful long term investment to continuously validate the indoor air quality in your school.



Does the system have a monitoring or an alert capability?

## References

- 1 Study by the LKS Faculty of Medicine at The University of Hong Kong. <https://www.med.hku.hk/en/news/press/20211215-omicron-sars-cov-2-infection>
  - 2 Conway Morris, A, et al. The removal of airborne SARS-CoV-2 and other microbial bioaerosols by air filtration on COVID-19 surge units. <https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciab933/6414657?guestAccessKey=248e14cc-d920-4782-99b7-634e47cdaa0e>
  - 3 The Role of Air Changes per Hour (ACH) in Possible Transmission of Airborne Infections, Dept of Health & Human Services, National Institutes of Health, Bethesda, USA. [https://www.researchgate.net/publication/234076679\\_Role\\_of\\_Air\\_Changes\\_per\\_Hour\\_ACH\\_in\\_Possible\\_Transmission\\_of\\_Airborne\\_Infections](https://www.researchgate.net/publication/234076679_Role_of_Air_Changes_per_Hour_ACH_in_Possible_Transmission_of_Airborne_Infections)
  - 4 New York Attorney General Letitia James sued Amazon.com over its handling of worker safety issues around the Covid-19 pandemic at two warehouses. <https://www.cnbc.com/2021/02/17/new-york-attorney-general-sues-amazon-over-covid-shortfalls.html>
  - 5 Innovative Bioanalysis Inc, Lab Test Results, August 2021- Air purifier against aerosolised SARS-COV-2. [https://www.aurasmartair.co.uk/uploads/5/9/0/3/59035891/aura\\_air\\_-\\_air\\_purifier\\_against\\_aerosolized\\_sars-cov-2.pdf](https://www.aurasmartair.co.uk/uploads/5/9/0/3/59035891/aura_air_-_air_purifier_against_aerosolized_sars-cov-2.pdf)
- This article is written by Paul Kasler on behalf of Aura Air Limited, the UK Distributor of the Aura Smart Air range of products. The unique, all-in-one, Aura Air unit, incorporates a patented RAY Filter, UV-C light and also a patented Sterionizer, 24/7 air quality monitoring and recording, as well as intelligent, unattended operation. The product received regulatory approval by the Department of Health in Israel in October last year. The system successfully passed tests in Californian Labs, in August last year(5), achieving 99.99% effectiveness in eliminating viruses, such as SARS COV-2, in enclosed spaces. In a controlled laboratory environment, the device was able to eliminate airborne active SARS-CoV-2 by 87.37% in just 30 minutes and by 99.998% in 60 minutes. Since the start of the pandemic Aura Air has been deployed throughout Sheba Hospital and in particular its COVID wards. Sheba Hospital was ranked by Newsweek as one of the "Top 10 Clinical Hospitals in the World" and in July 2020, a white paper was submitted by the hospital on the efficacy of the Aura Air unit.