

Call for submissions and evidence to the COVID-19 Response Inquiry

Introduction

Opira is a leading indoor air quality consultancy providing products and services to the Australian healthcare market. Specific services provide to the healthcare sector include:

- indoor air quality audits,
- hospital heating, ventilation and air conditioning (HVAC) management plans, and
- provision of infection control devices.

The business recently celebrated it's 20th anniversary since its establishment.

Our experience during COVID was a major increase in interest in our ultraviolet (UV₂₅₄) disinfection products supplied by the Canadian company Sanuvox.¹ Sanuvox has been supplying these products since 1995 and Opira has been its Australian distributor since 2011. These UVC₂₅₄ products are effective in killing a variety of pathogens transmitted in air, including SARS-CoV-2.²

While UVC₂₅₄ products have been very popular in the Queensland healthcare sector for the control of pathogens in the critical care areas and for maintaining cleanliness in HVAC systems,³ there has been no such increase in interest from healthcare operators in other states in using this technology to limit the spread of COVID19 and other airborne pathogens.

This submission seeks to address the following terms of reference:

Mechanisms to better target future responses to the needs of particular populations (including across genders, age groups, socio-economic status, geographic location, people with disability, First Nations peoples and communities and people from culturally and linguistically diverse communities).

Capacity of UVC₂₅₄ to limit the spread of airborne infections

The air cleaning/purification market is awash with new technologies that promise to eliminate airborne pathogens in indoor occupied spaces. Very few of these technologies have the necessary research history and scientific understanding to support their claims. What separates UVC₂₅₄ from other technologies is the very long research history of UVC disinfection against known pathogens and other microbes.⁴ This trend has

¹ <https://sanuvox.com/en/>

² Biasin, M., Bianco, A., Pareschi, G., Cavalleri, A., Cavatorta, C., Fenizia, C., ... & Clerici, M. (2021). UV-C irradiation is highly effective in inactivating SARS-CoV-2 replication. Scientific Reports, 11(1), 6260. <https://www.nature.com/articles/s41598-021-85425-w>

³ Riese (2023a). Drivers behind the widespread use of UV disinfection technology in Queensland hospitals. Healthcare Facilities Summer 2023/24. https://issuu.com/adbourne/docs/healthcare_facilities_summer_2023/22

⁴ Riese (2023b). Evaluation of Competing Air Cleaning Technologies. Healthcare Facilities Journal. Healthcare Facilities April 2023: https://issuu.com/adbourne/docs/healthcare_facilities_journal_autumn_2023/30

been supported by several publications by healthcare authorities, government and NGOs giving guidance to hospitals on the application of the technology. These include (in date order):

- Kowalski, W. 2009. Ultraviolet Germicidal Irradiation Handbook for Air and Surface Disinfection. Springer-Verlag Berlin Heidelberg. Retrieved from: <https://www.springer.com/gp/book/9783642019982>
- NIOSH 2009 - Environmental Control for Tuberculosis: Basic Upper-room Ultraviolet Germicidal Irradiation Guidelines for Healthcare Settings. Retrieved from: <https://www.cdc.gov/niosh/docs/2009-105/default.html>
- ASHRAE Handbook 62.8 (2019). Ultraviolet Air and Surface Treatment. Retrieved from: <https://www.ashrae.org/technical-resources/ashrae-handbook/table-of-contents-2019-ashrae-handbook-hvac-applications>
- ASHRAE Handbook 17 (2020). Ultraviolet Lamp Systems. Chapter 17 Retrieved from: https://www.ashrae.org/file%20library/technical%20resources/covid-19/i-p_s16_ch17.pdf
- UK NHS 2023: Application of ultraviolet (UVC) devices for air cleaning in occupied healthcare spaces: guidance and standards. <https://www.england.nhs.uk/long-read/application-of-ultraviolet-uvc-devices-for-air-cleaning-in-occupied-healthcare-spaces-guidance-and-standards/>

There is always some degree of risk with the introduction of new infection control technologies. What distinguishes the use of UVC₂₅₄ from other technologies is that the mitigation and control measures are well established and understood, leading to increasing confidence in its application for air and surface disinfection in the hospital sector.

The UVC₂₅₄ technology has also been widely endorsed by leading Australian and international air quality scientists. Distinguished Professor Lidia Morawska heads the International Laboratory for Air Quality and Health (ILAQH) based in Brisbane and has been a strong proponent of UVC₂₅₄ technologies to deal with the COVID19 epidemic.⁵

Recommendation 1: That the Committee consider a Commonwealth-funded independent scientific review of air cleaning technologies suitable for effective infection prevention and control in buildings. The ILAQH centre led by Professor Morawska would be ideally placed to lead such an investigation.

Management of buildings to limit disease spread in future pandemics

Professor Morawska's co-author for the COVID-19 paper is US-based Professor William Bahnfleth, who is chair of the US committee which has developed the new ASHRAE 241 standard for the control of infectious aerosols in buildings.⁶ We wish to draw the inquiries attention to this very important standards as it establishes the performance measures necessary to limit pathogen spread during a pandemic.

Opira consider that Australia should also seek to adopt a similar standard so that we are ready for the next pandemic. Rather than close public buildings and shut down economic activity, the adoption of an equivalent

⁵ Morawska, L., Tang, J. W., Bahnfleth, W., Bluysen, P. M., Boerstra, A., Buonanno, G., ... & Yao, M. (2020). How can airborne transmission of COVID-19 indoors be minimised?. *Environment international*, 142, 105832.

<https://www.sciencedirect.com/science/article/pii/S0160412020317876>

⁶ ASHRAE 241-2023 Control of Infectious Aerosols https://www.techstreet.com/ashrae/standards/ashrae-241-2023?product_id=2567398

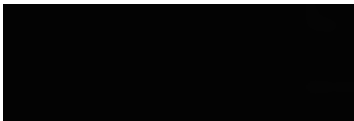


ASHRAE 241 in Australia would allow relatively normal activities to take place during a pandemic and ensure that building occupants are not exposed to excessive disease risk.

The Australian Standards Committee ME-062 which develops building ventilations standards (AS1668 series) should be encouraged to adopt an ASHRAE 241-equivalent standards.

Recommendation 2: That the Commonwealth Government provided the necessary support and funding to Australian Standards or equivalent standards-setting organisation to develop an Australian version of the ASHRAE 241 - Control of Infectious Aerosols.

If you have any questions in relation to this submission, please contact me directly (contact details below).



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