Affordable air monitors identify 'super-spreader' areas in health settings

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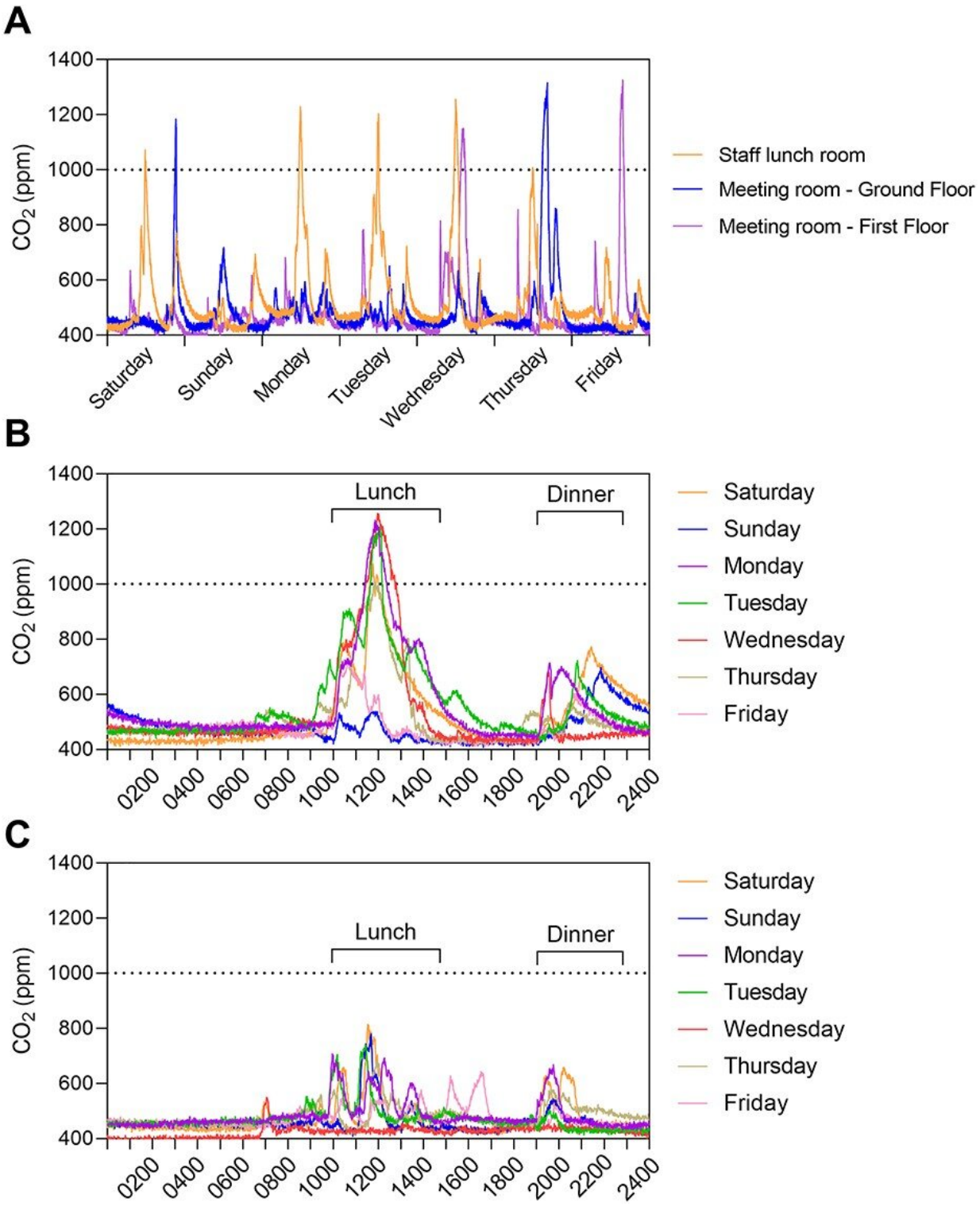

CO2 levels in a long-term RACF. (A) Showing high CO2 peaks in three high-risk airborne infection transmission zones. (B) CO2 levels over a 24-h period in the staff lunchroom over the course of a week prior to the installation of the

extraction fan, showing high prolonged peaks between 1,000–1,400 and 1,900–2,200, corresponding with staff lunch and dinner breaks. (C) Lunchroom CO2 levels after the installation of the extraction fan, showing reduced peaks. Credit: *Age and Ageing* (2022). DOI: 10.1093/ageing/afac316

Measuring levels of carbon dioxide, the gas we produce naturally when breathing, can help to identify poorly ventilated spaces that carry a high risk of COVID-19 transmission.

Placing CO_2 monitors in public spaces, such as hospitals, schools and aged-care facilities, could play a major role in the battle against airborne respiratory viruses, such as COVID-19 and the flu, according to South Australian health experts.

Low-cost CO_2 sensors can accurately identify areas at risk for "super-spreader" events, as reported in a major new study led by South Australian Health and Medical Research Institute (SAHMRI) and Flinders University medical researchers.

The research, carried out at the Helping Hand Lightsview residential aged-care home in Adelaide, involved assessment of airborne transmission risk in more than 60 areas used by staff and residents.

"COVID-19 has demonstrated the devastating consequences of the rapid spread of an airborne virus in residential aged care," says Dr. Steven Taylor, co-author of a new article published in *Age and Ageing*.

"Reassuringly, we found that none of the resident areas were found to be high-risk. However, a number of staff areas, including meeting rooms and tea rooms, were flagged as potential transmission zones."

In partnership with Helping Hand, the research team was able to take simple measures to increase ventilation in these staff areas—and the changes demonstrated substantially reduced transmission risk.

"Almost all buildings have areas that carry a high risk of airborne transmission of respiratory viruses. However, the ability to identify these areas and implement strategies to reduce this risk has been limited," researchers say.

"CO_2 monitoring is inexpensive, re-deployable and an underutilized method to quickly and accurately identify high-risk areas."

More information: Amanda Brass et al, Targeted reduction of airborne viral transmission risk in long-term residential aged care, *Age and Ageing* (2022). DOI: 10.1093/ageing/afac316

Provided by Flinders University