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Japan develops desktop-sized air-curtain to inactivate coronavirus particles

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The desktop air curtain removes the need for a physical barrier, allowing easy physical contact between a doctor and patient

There are certain situations where maintaining distance to reduce the spread of COVID-19 is difficult, such as when a doctor takes blood or when someone checks into a hotel. By combining medical and engineering technologies, a team of Nagoya University researchers in Japan combined a desktop-sized air-curtain with LEDs to irradiate the coronavirus and allow people to interact in close environments safely.

“Although acrylic sheets are currently widely used as partitions, our air curtain not only blocks, but also deactivates, viruses,” says Professor Tomomi Uchiyama, one of the authors of the study. “Therefore, we expect this device to render acrylic partitions obsolete and become widely used.”

The combination of the two technologies to block exhaled air and inactivate the virus more effectively was the result of a collaboration between Professor Uchiyama and Nobel laureate Professor Hiroshi Amano of the Institute of Materials and Systems for Sustainability (IMaSS) at Nagoya University, and Professor Tetsuya Yagi of the Graduate School of Medicine.

Their new technology, the results of which were published in AIP Advances, combines two ways to combat the virus. First, an air-curtain blocks exhaled air even when someone puts their arm through it. Second, ultraviolet irradiation destroys the outer coat of virus particles. Tests in their laboratory found that this combination of technologies inactivated 99.9% of COVID-19 particles.