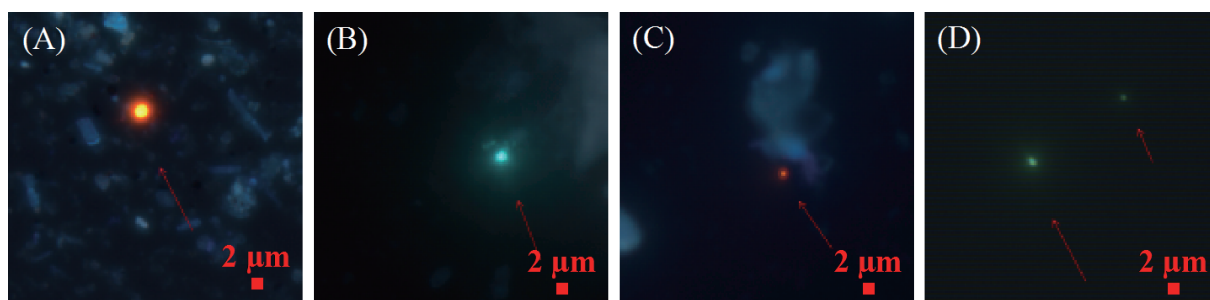


## Supplementary Material

On June 14, 2021, a customs officer who engaged in an epidemiological investigation at Shenzhen Bao'an Airport was confirmed to be infected with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) at the fever clinic. He participated in the epidemiologic investigation of passengers on Flight CA868 from South Africa on June 10. In order to investigate whether inhaling virus-laden aerosols is a mode of long-distance transmission of COVID-19, we conducted a field aerosol simulation experiment at the inbound passenger waiting and epidemiological investigation area of Shenzhen Bao'an Airport. The same air conditioning unit is used for air supply and return in this area. Multiple air supply outlets were located in the waiting area and the epidemiological investigation area, and multiple air return outlets were located in the front and back of the epidemiological investigation area. The inbound passengers in the waiting area were relatively dense and did not wear masks sometimes.

We used fluorescent polystyrene microspheres consistent with the similar aerodynamic characteristics of the SARS-CoV-2 spike pseudovirus to simulate respiration for 2 hours in the waiting area (the specific methods were described as previously published paper) (1). Samples of sedimentation on the air supply and return outlets were collected with cotton swabs and the concentration of aerosol particles with different sizes were monitored in the epidemiological investigation area about 25 meters away from the waiting area. It was found that after 20 minutes of fluorescent microspheres were aerosolized, the number concentration of aerosol particles with different sizes in the epidemiological investigation area increased significantly. The fluorescent microspheres were detected at the air supply and return outlets after 2 hours. The results were shown in Supplementary Figure S1. It showed that the simulated viral aerosol can spread from the waiting area to the epidemiological investigation area through the air supply and return of the central air-conditioning system and can spread over a long distance.



SUPPLEMENTARY FIGURE S1. Field aerosol simulation experiment results at the inbound passenger waiting and epidemiological investigation area of Shenzhen Bao'an Airport. Representative photos of fluorescent microspheres (yellow and green) of air samples using natural sedimentation on (A) air return outlet of the front of epidemiological investigation area; (B) air return outlet of the back of epidemiological investigation area; (C) air supply outlet of the front of epidemiological investigation area; (D) air supply outlet of the waiting area.

## REFERENCES

1. Zhang ZN, Li X, Wang Q, Xu J, Jiang QQ, Jiang SL, et al. Field simulation of aerosol transmission of SARS-CoV-2 in a special building layout-Guangdong province, China, 2021. *China CDC Wkly* 2021;3(34):711 - 5. <http://dx.doi.org/10.46234/ccdcw2021.176>.