

LETTER TO THE EDITOR

# Tackling COVID-19 pandemic from an aviation perspective: a point of view

Yousef M. Alsofayan<sup>1</sup> 

In recent times, modern aircraft is considered an inevitable mode of transportation worldwide. Although featured with advanced technologies and heavily impacting world economics, the aviation industry continuously creates a burden for unexpected medical emergencies [1]. The challenges of a pressurized cabin, the lack of qualified personnel and equipment, and special airflow dynamics in an aircraft make it a less preferred environment to treat medical conditions. Moreover, the spread of communicable diseases on flights is a well-recognized hazard from previous outbreaks [2]. With the turmoil of the coronavirus disease 2019 (COVID-19) pandemic passing its first year, it led to over 100 million confirmed cases and more than 2 million deaths across the globe [3]. Several stepwise precautionary measures empowered by concerned authorities were taken by the aviation industry at the early phases of the pandemic based on previous experiences to contain the disease and prevent its spread. Reviewing the international epidemiological situation, warning, and restricting flights across continents, especially to and from affected

countries, is a critical initial step in the war against this virus [4]. Coordination with concerned entities to communicate with travelers and staff members at the points of entry to enhance their awareness about COVID-19 through targeted educational materials is of utmost importance. This could include educational videos on flight screens, distributing pamphlets, and displaying educational boards about the best practices against the disease (proper hand hygiene, mask use, cough etiquette, social distancing, etc.) [5]. At airports, having a public health emergency plan, providing negative results of the disease and proof of immunity, imposing

**Correspondence to:** Yousef M. Alsofayan  
Ministry of Health, Riyadh, Saudi Arabia.  
**Email:** y-m-alsofayan@hotmail.com  
*Full list of author information is available at the end of the article.*  
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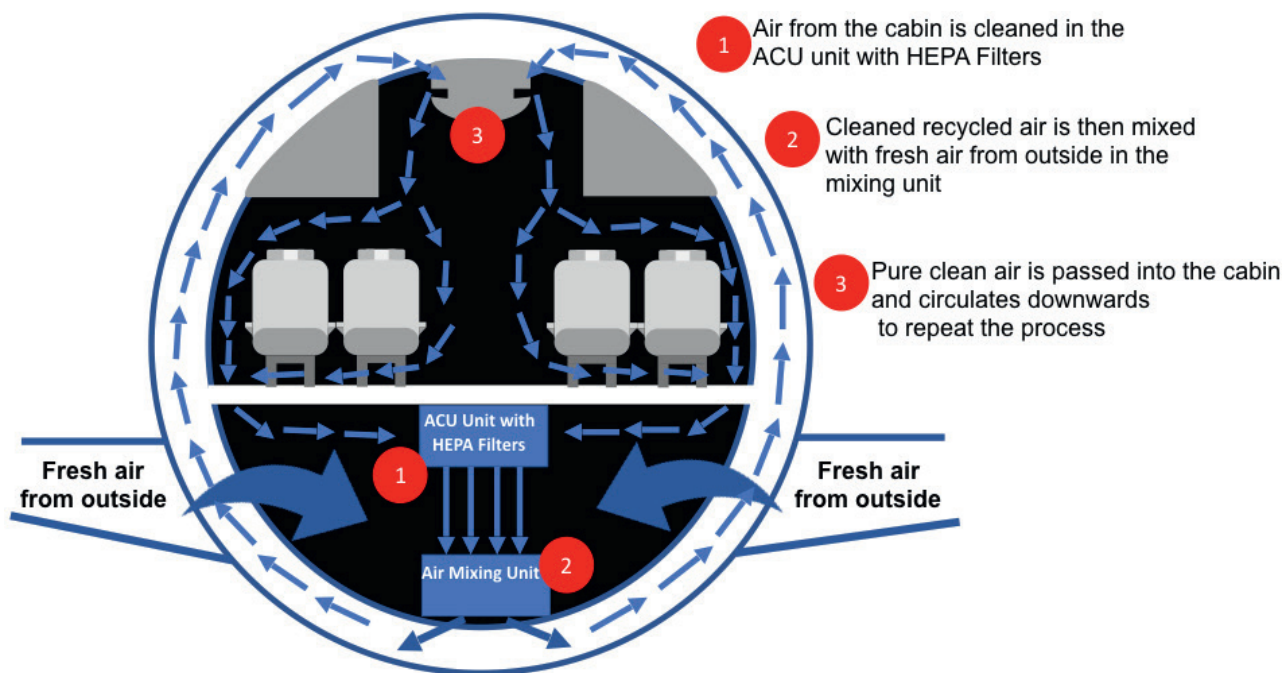


Figure 1. Single-deck aircraft cabin air flow and filtration system.

preventive measures, and mandating passengers and crew members to declare their whereabouts are all required [5]. Moreover, setting specialized medical screening points equipped with declarations forms, thermal cameras, and electronic thermometers helps in guiding the proper disposition of the suspected case (healthcare facility, quarantine, or home) in accordance with local and international protocols [5]. Onboard, although COVID-19 modes of transmission are known, its relation with airflow dynamics is not fully explored on single- and double-deck aircraft [6]. Shortening the flight course to reduce the exposure time to the virus seems a rational concept. Regarding the airflow system during the flight, the air inside the cabin coming from the engines is processed and filtered from toxins through a cabin air filtration system with high-efficiency particulate air (HEPA) filters prior to its release. It is then pumped through special air ducts in the cabin in a circular motion and discharged from the cabin through outflow systems (Figure 1) [7]. Presumably safe, airflow dynamic features in an aircraft could create a hazard to spread the disease through infected passengers to others onboard. Having said that, maintaining preventive measures, wearing personal protective equipment, cleaning lavatories frequently, serving prepacked meals with disposable kits, and applying aircraft fumigation protocols are fundamental precautionary concepts on planes in preventing COVID-19 spread at all times.

#### Author details

Yousef M. Alsofayan<sup>1</sup>

1. Ministry of Health, Riyadh, Saudi Arabia

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