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COVID-19 air travel restrictions and vaccine passports: An ongoing debate



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Dear Editor,

The risk of in-flight transmission of SARS-CoV-2 was suggested to be low [1]; however, the evolution of the pandemic has been linked to air travel [2]. Several governments deployed air travel restrictions during the course of the COVID-19 pandemic to reduce the spread of the virus. Most airlines introduced infection control measures such as passenger distancing (i.e., new in-flight configurations, entering and exiting the aircraft protocols), universal application of face masks, widespread use of disinfectants, and utilization of personal protective equipment by the flight attendants. Notwithstanding, no large studies have been performed to test in-flight viral transmission between passengers or the putative acquisition of SARS-CoV-2 infection by cabin crew members due to repeated exposure thus far. This is an obvious research gap that needs to be addressed.

Although the COVID-19 pandemic was declared as a Public Health Emergency of International Concern by the Emergency Committee of the World Health Organization (WHO), the WHO did not support travel restrictions and advised against their application to countries experiencing COVID-19 outbreaks [3], in part because of the potential socio-economic impact of such restrictions. For example, it was projected that by the end of 2020, the effects of aviation losses might negatively reduce world Gross Domestic Product by up to 1.67%, while the number of job losses may reach 25–30 million. Recently, the WHO provided guidance on how to gradually re-establish international travel [4]. However, the disruption of international trade, tourism, and other businesses, the collapse of airline industry and associated travel companies, along with the variable evolutionary patterns of the pandemic in different countries, resulted in versatile plans to lift the travel bans. Countries depending largely on tourism to revive their economy adopted a “risk-based” approach, which presumably caused the resurgence of infectious outbreaks as high rates of asymptomatic air passengers were detected [5].

One suggestion that has emerged to help control the spread of SARS-CoV-2 is the use of vaccine passports or other such documentation, which certifies a person has been vaccinated against SARS-CoV-2 and is therefore exempt from travel restrictions. The concept of using COVID-19 vaccine passports based on real-time polymerase chain reaction and serology tests to facilitate lifting air travel bans remains obscure due to

the uncertainty surrounding the reliability of these tests for determining infection and thus potential immunity. Unfortunately, to date, no reliable data exist to support the use of serology as a basis for the immunity that a vaccine passport would imply, nor to suggest how effective and long-lasting the immunity might be following a putative vaccination. Despite the aforementioned limitations, vaccine passports could be integrated with a reasonable, logistical framework to boost economic recovery by lifting air travel restrictions while avoiding the stigmatization of travelers. International Air Transport Association has tied up with some 20 airlines in piloting a smartphone application to implement “digital health passport” which could securely store COVID-19 diagnosis and vaccination data of passengers across boundaries [6].

Firm, evidence-based mechanisms to validate diagnostic tests and identify asymptomatic cases, reinfections and false-negative/positive results could be pursued within the International Health Regulations (IHR) agenda based on WHO standards. This may help to address ethical dilemmas and scientific controversies. Moreover, countries not deploying travel restrictions should have the capacity for spotting, testing, and quarantining all imported cases, as well as tracing and tracking plausible contacts. These measures have limitations, especially in developing nations due to the limited availability of funds, resources, and trained personnel.

The development of an international political and scientific consensus for an optimal public health response against pandemics based on WHO’s IHR framework could reduce conflicts between scientists and politicians. SARS-CoV-2 is spreading across various areas, exhibiting diverse epidemiologic patterns, which the movements of asymptomatic carriers could potentially enhance via a poorly defined and managed to reopen international air travel. In an era of pandemics, finding a sense of balance between safeguarding global health and addressing pertinent socio-economic trepidations necessitates robust preventive strategies and the development of a scientific/societal consensus.

Authors’ contributions

ZAM contributed to writing, data collection/analysis, interpretation, revision, and critical review. AA, SAA, and DK contributed to data

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Declaration of competing interest

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References

- [1] Pavli A, Smeti P, Hadjianastasiou S, Theodoridou K, Spilioti A, Papadima K, et al. In-flight transmission of COVID-19 on flights to Greece: an epidemiological analysis. *Trav Med Infect Dis* 2020;38:101882. <https://doi.org/10.1016/j.tmaid.2020.101882>.
- [2] Eldin C, Lagier JC, Mailhe M, Gautret P. Probable aircraft transmission of Covid-19 in-flight from the Central African Republic to France. *Trav Med Infect Dis* 2020;35:101643. <https://doi.org/10.1016/j.tmaid.2020.101643>.
- [3] World Health Organization. Updated WHO recommendations for international traffic in relation to COVID-19 outbreak. <https://www.who.int/news-room/articles-detail/updated-who-recommendations-for-international-traffic-in-relation-to-covid-19-outbreak>. 29 February 2020 [accessed 17 March 2021].
- [4] World Health Organization. Public health considerations while resuming international travel. <https://www.who.int/news-room/articles-detail/public-health-considerations-while-resuming-international-travel>; 30 July 2020 [accessed 17 March 2021].
- [5] Lytras T, Dellis G, Flountzi A, Hatzianastasiou S, Nikolopoulou G, Tsekou K, et al. High prevalence of sars-cov-2 infection in repatriation flights to Greece from three European countries. *J Trav Med* 2020;27. taaa054.
- [6] Morrison M. Flight Global: IATA health passport app to roll out with 20 airlines, <https://www.flightglobal.com/airlines/iata-health-passport-app-to-roll-out-with-20-airlines/142369.article>; 10 February 2021 [accessed 17 March 2021].

Ziad A. Memish

Research & Innovation Centre, King Saud Medical City, Riyadh, Saudi Arabia

Hubert Department of Global Health, Rollins School of Public Health, Emory University, Atlanta, GA, USA

E-mail address: zmemish@yahoo.com.

Abdulrahman Alharthy

Critical Care Department, King Saud Medical City, Riyadh, Saudi Arabia

E-mail address: a_almshal@hotmail.com.

Saleh A. Alqahtani

Department of Medicine, Johns Hopkins University, Baltimore, USA

Department of Medicine, King Faisal Specialist Hospital & Research Centre, Riyadh, Saudi Arabia

E-mail address: salqaht1@jhmi.edu.

Dimitrios Karakitsos*

Critical Care Department, King Saud Medical City, Riyadh, Saudi Arabia

Department of Internal Medicine, University of South Carolina, School of Medicine, Columbia, SC, USA

* Corresponding author. Critical Care Dept., King Saud Medical City, PO Box 331905, 11373, Riyadh, Saudi Arabia.

E-mail address: karakitsosdimitrios@gmail.com (D. Karakitsos).