Travel restrictions and evidence-based decision making for novel epidemics

Dr Jessica Stanhope
Associate Lecturer
Allied Health Science and Practice
Faculty of Health and Medical Sciences
The University of Adelaide
North Terrace
Adelaide South Australia 5005
Australia

Prof. Philip Weinstein
Professorial Research Fellow
School of Public Health
Faculty of Health and Medical Sciences
The University of Adelaide
North Terrace
Adelaide South Australia 5005
Australia

Travel restrictions to control severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the virus that causes coronavirus disease 2019 (COVID-19) were rapidly implemented in Australia. Despite its apparent efficacy, this proactive approach has been criticised as unscientific, and in breach of International Health Regulations (IHRs). Habibi et al.[1] claim that travel restrictions were implemented without supporting scientific evidence, and had "been challenged by public health researchers", citing research on Ebola and influenza. Their interpretation is not consistent with an evidence-based approach. When managing a novel infection, evidence-based decision making should (1) use the best available *relevant* information which is generalisable to the novel infection (e.g. an infection with a similar route of transmission, i.e. not Ebola, but rather severe acute respiratory syndrome coronavirus (SARS-CoV), influenza, and Middle Eastern Respiratory Syndrome (MERS)), and (2) clearly define the outcome of interest (e.g. prevention versus delay). A recent review[2] of travel restrictions for emerging infectious diseases (including SARS-CoV and MERS) identified only one study regarding coronaviruses. The evidence identified supports the use of air travel bans to prevent the spread of coronavirus epidemics.[2] Furthermore, evidence from systematic reviews[3-5] (including the review[4] cited by Habibi et al.[1]), have reported that travel restrictions delayed, but did not prevent, the spread of influenza;[3, 4] these, delays were up to four months,[4] and up to 10 months if implemented in combination with other local strategies.[5] At the start of the COVID-19 pandemic, this reflected the best available evidence to make evidence-based decisions regarding travel restrictions. The evidence suggests that travel restrictions may, therefore, be used to *delay and attenuate* the peak in case numbers to minimise peak stresses on the health system, allowing for preparations to be made to better manage the outbreak, which may include upskilling the health professional workforce, building new facilities, improving access to laboratory testing and ventilators, and stockpiling

personal protective equipment). This is the primary goal of travel restrictions as public health interventions. We conclude that Australia's rapid introduction of travel restrictions is consistent with an evidence-based approach that prioritises the precautionary principle and saving lives.

Authors Statement

The authors declare no conflicts of interest.

Authors Contributions

Both authors conceptualised and drafted the manuscript.

References

1. Habibi R, Burci GL, de Campos TC, Chirwa D, Cinà M, Dagron S, et al. Do not violate the International Health Regulations during the COVID-19 outbreak. Lancet. 2020;395(10225):664–6.
2. Errett N, AL. E. An integrative review of the limited evidence on international travel bans as an emerging infectious disease disaster control measure. J Emerg Med. 2020;18(1):7-14.
3. Ryu S, Gao H, Wong JY, Shiu EYC, Xiao J, Fong MW, et al. Nonpharmaceutical measurse for pandemic influenza in nonhealthcare settings - international travel-related measures. Emerg Infect Dis. 2020;26(5).
4. Mateus ALP, Otete HE, Beck CR, Dolan GP, Nguyen-Van-Tam JS. Effectiveness of travel restrictions in the rapid containment of human influenza: a systematic review. Bull World Health Organ. 2014;92(12):868–80D.
5. Lee VJ, Lye DC, Wilder-Smith A. Combination strategies for pandemic influenza response - a systematic review of mathematical modeling studies. BMC Medicine. 2009;7:76.