Correspondence

Immunity passports to travel during the COVID-19 pandemic: controversies and public health risks

ABSTRACT

As countries emerge from pandemic lockdown, many countries are relaxing international travel restrictions. Commercially available serologic tests for anti-SARS-CoV-2 antibodies are being performed. The concept of an ‘immunity passport’ has gained popularity, whereby evidence of SARS-CoV-2 antibody production would signal immunity to reinfection. For an immunity certificate to be validated for travel purposes, it should meet certain criteria. The introduction of such certificates faces multiple challenges. While there may be a future role for immunity passports in limited circumstances in the event that a protective vaccine becomes freely available, for now at least the risks of such an approach outweigh the perceived benefits.

Keywords infectious disease, migration, public health

To the editor

The rapid global spread of SARS-CoV-2 was initially facilitated by international travel. As society begins to emerge from months of stringent confinement, many states are relaxing international travel restrictions in an effort to stimulate their economies. Members of the public are beginning to entertain the prospect of a resumption of normal travel, albeit under unfamiliar conditions.1 As travel medicine practitioners, we are receiving abundant queries from members of the public about the current safety of air travel and their own medical fitness to fly. Serologic tests for anti-SARS-CoV-2 antibodies are being requested. Many individuals are curious about the possibility of past infection based on historical symptoms but in the absence of a confirmed diagnosis.

The concept of an ‘immunity passport’ has been advanced, whereby serologic evidence of SARS-CoV-2 antibody production indicates immunity to a second infection.2 In the case of international travel, such ‘risk-free certificates’ could reassure an anxious travelling public and potentially satisfy national border control requirements. Immunity passports already exist in public health and travel medicine. Certified evidence of vaccination against yellow fever in an international certificate of vaccination or prophylaxis is required under International Health Regulations. For any immunity certificate to be valid in the case of COVID-19, it would need to satisfy the criteria outlined in Table 1.

A population-based study from Switzerland estimated that 10.8% had been infected with SARS-CoV-2.3 Similarly modest seroprevalence levels have been reported elsewhere. The question of whether seropositivity reflects durable immune protection against the virus remains unanswered. While most COVID-19 patients seroconvert within 2 weeks of the onset of symptoms, the IgG titre has been found to decline significantly within weeks of infection in some patients.4 A recent Cochrane review examined studies that measured the accuracy of COVID-19 antibody tests.5 The authors expressed doubt about how well commercially available serologic tests detect evidence of past infection beyond 5 weeks of symptom onset.

The introduction of immunity passports is beset with challenges, not least of which is the potential erosion of civil liberties, as travellers are stratified into the ‘immunoprivileged’ and the ‘immunodeprived’. Such societal inequalities could be amplified if an effective vaccine becomes available, but is not universally accessible. Citizens from countries that are unable to implement immunity passport programmes could be denied entry to countries that mandate them. The racial disparities in rates of death from COVID-19 reported in this journal6 underscore the need to mitigate further healthcare inequities. Immunity passports could create perverse incentives, such that nonimmune individuals may expose themselves to infection. Counterfeit yellow fever vaccination certificates are a concern7, and fraud could also undermine the biosecurity of a COVID-19 immunity certificate.

While the role of immunity passports may be revisited at a later date, if there is universal, timely access to a protective COVID-19 vaccine, we subscribe to the recent guidance from the World Health Organization that the use of such
Table 1 Immunity passport validation criteria for COVID-19

| Validation criterion                      | Considerations for COVID-19                                                                                                                                 |
|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Disease prevalence                        | Low seroprevalence to date but population studies ongoing                                                                                                                                               |
| Antibody response to infection            | Doubt about level of antibody production in mild or asymptomatic cases                                                                                                                                       |
| Presence of protective immunity           | Not established whether antibody production equates to immunity against second infection                                                                                                                   |
| Duration of immunity                      | Unknown whether neutralising antibodies persist beyond 40 days after symptom onset                                                                                                                                 |
| Accessibility of antibody test             | Commercial antibody tests may not be affordable by all                                                                                                                                                     |
| Performance characteristics               | Highly sensitive and specific tests are available, but lesser quality tests also exist                                                                                                                       |
| Feasibility of retesting                  | Large numbers of individuals may require retesting to establish current immunity                                                                                                                           |
| Secure certification processes             | Documentation should be resistant to attempts at counterfeit production                                                                                                                                     |
| Privacy concerns                          | Individuals’ right to privacy should not be compromised if electronic apps are used                                                                                                                        |
| Public health measures                    | May lead to failure to comply with face masks or physical distancing advice                                                                                                                                  |

certificates may increase the risk of viral transmission where individuals falsely assume that they are immune to further infection and ignore public health advice.5 While seroprevalence studies will continue to improve our understanding of COVID-19, the use of antibody tests as a means of certifying fitness for international travel would appear to be limited for now.

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**Competing interest**

The authors declare that they have no competing interests.

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