SDGHI Perspectives Essay Series - **COVID-19 A Year Later**

Vaccines in Southeast Asia

Immunity passports: their implementation and practicality

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For decades, countries have set distinct rules for travellers to be granted entry. Commonly, countries like Argentina, Burundi and Tanzania all require proof of yellow fever vaccination as just one example (Jentes et al, 2011). Now, a year after the start of the COVID-19, travellers are faced with the prospect of yet another prerequisite. With a total number of 141 million cases and more than 3 million deaths as of April 2021, a vaccine was one of the first thoughts in everyone's minds (Dong, Du and Gardner, 2020). The initial race was between pharmaceutical power houses: Pfizer (collaborating with BioNTech), AstraZeneca and Moderna. Pfizer-BioNTech came out ahead within a narrow margin by achieving emergency approval from WHO on the 31st of December 2020 with an efficacy rate of 95% (Olliaro, Torreele and Vaillant, 2021). The idea of immunity passports, reflecting vaccination status, soon followed. In addition to that, these immunity passports could also work by indicating levels of acquired immunity through antibody and other similar tests.

Immunity passports were ideally set to work by meeting the criteria constructed by (Liew and Flaherty, 2021) which is demonstrated in the table below.

Table 1: Criteria that Liew and Flaherty constructed for an immunity passport to be safe and viable

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

However, the current proposals for international immunity passports fall short of the holistic criteria described in the table above. What seems to be under consideration at the moment is travellers presenting a negative polymerase chain reaction (PCR) test result and filling out a declaration form stating they do not currently suffer from any symptoms. This is a somewhat "lite" version of what was described by Liew and Flaherty and is arguably not anywhere near as safe. This is in part due to laboratory tests needing "further validation to determine their accuracy and reliability" according to the World Health Organization (WHO, 2020). PCR tests can yield false-negative results, which means that this lite version is not enough to prevent asymptomatic people from spreading the disease unknowingly. For example, (Armstrong, 2020) reported that Professor Deeks found "60 per 100 000" false negatives from students at Birmingham University. Consequently, with COVID's R0 (basic reproduction number) teetering between "0.7 and 0.9", every ten people can infect "seven to nine" individuals (Gallagher, 2020). So, those 60 false negatives could plausibly produce 42-54 new cases per 100,000 and that number would only continue to rise.

Despite this, East Asian countries enacted protocols in a very different manner compared to their Western counterparts in terms of managing, containing and preventing infection transmission. Records show that Taiwan, South Korea and China stood out for effectively curbing their infection rates and flattening the curve. For instance, Taiwan strategically employed the Taiwanese Infectious Disease Control Act 2007, which gave hospitals the permission to link the "travel history of individuals to their National Insurance (NHI) card" and gave hospitals the ability to predict prospective cases. Additionally, the 2007 Act allowed officials to monitor travellers from high-risk countries via "personal or government-dispatched phones and on occasion in-person checks" during their 14 day quarantine. This meant that Taiwan was able to proactively keep their total deaths from COVID-19 per million to 0.3 (Summers et al, 2020).

Singapore, another Asian success story, went down a slightly different route. They chose to prioritise contact tracing. By developing TraceTogether, one of the first tracing apps that operated via Bluetooth to keep track of citizens (Abbas & Michael, 2020), the app would utilise "anonymised and encrypted user IDs" that would be decoded by the Ministry of Health when users would come into contact with others who tested positive (Han, 2021).

Contrastingly, the US failed to suppress or attenuate their numbers and rates because they barely had a handle on the basics: screening, mandatory mask wearing and closing borders. Their lackadaisical attitude to rule enforcement meant that the US was still grappling with the pandemic in comparison to countries that had practically returned to normalcy. The mismanaged protocols nationwide meant that the United States had severe disparity in cases from state to state. In part due to variance "divided sharply along partisan lines" (Altman, 2020). Although this situation has rapidly changed under the current administration.

Immunity passports would primarily rely on proving the holder's absence of infection through vaccine certification, in particular. To date, vaccinations in developed countries have shot up significantly. Singapore having administered 3.41 million doses of which 1.4 million are fully vaccinated, accounting for 25.3% of the country's population (Ritchie et al, 2021). This is far quicker than waiting for a region or country to acquire herd immunity. An uptake in vaccinations can justify the idea of immunity passports being adopted expeditiously.

Ethically speaking, Brown et al, (2021) summarised immunity passports as exacerbating "existing inequalities". Ergo, immunity passports pose very common problems in regard to race and privilege: the introduction of which produces a novel marker to separate people that can lead to prejudice that would affect minorities disproportionally. The terms "immunoprivileged" and "immunodeprived"

spring forth as benchmark appellations. This would increase tensions that from the beginning of the pandemic had already surpassed boiling point with COVID-19 being labelled as the “Chinese virus” by racists. Recently, this trend has continued with labels of the “Indian variant”. This illustrates clearly that global prejudices remain intact. Unfortunately, the harm does not stop at name-calling, inequalities in medical funding and other areas have resulted in some countries being way behind in their vaccination rates - escalating the situation from prejudicial to life threatening.

Moreover, immunity passports can be viewed as imposing restrictions on civil liberties in a travel system that post 9/11 feels constrictive. To add yet another step in the myriad of hoops travellers must jump through without it scientifically proven to be effective seems unnecessarily bureaucratic. This is strengthened by WHO’s, (2020) statement that so far there “is not enough evidence about the effectiveness of antibody-mediated immunity to guarantee the accuracy of an “immunity passport.” Yet, at least it is something in place to begin with, giving a sense of security to all those travelling during the pandemic.

On the negative side, instances of forgery and counterfeit documentation will be inevitable as many people will be willing to risk illegal activity for the chance of a break from living under lockdown for over a year. For others, it boils down to being a last resort when faced with no choice but to work in order to survive. If the rate is similar to false documentation of yellow fever vaccination (Adepoju, 2019), this would definitely be a major concern for any version of an immunity passport. On the other hand, blockchains for digitised immunity passports could be the answer to preventing forgery, as the blockchain does not allow for tampering at any stage. Another drawback for citizens who value their anonymity is the paper trail connected with immunity passports. This might be interpreted as an infringement on their rights to privacy.

Despite these concerns, and at least for the foreseeable future, immunity passports provide a potential solution to allow international leisure travel to restart in a safer way and give countries that rely on tourism a chance to recuperate some of their losses due to the pandemic. Nevertheless, for this to be operationally viable, major restructuring is paramount as the current version is not adequately regulated, which is necessary for immunity passports to be implemented globally with greater ease.

About the author

Fathum Mahamed

Fathum holds an undergraduate degree in Biology and once she has completed her Masters in Clinical Neuroscience, she looks forward to pursuing a career as a Clinical Research Scientist. Neurological disorders have been deemed as "one of the greatest threats to public health" and her degrees in Biology and Neuroscience can coalesce with the public health sector to address wider pressing issues cutting across the different specialisations. Before working as a market researcher at Integral Research, she was employed as a data verifier for the charity, Real Aid. Outside of academia, she is relearning French and has previously volunteered as a Swahili translator for the Borough of Kensington and Chelsea in London. Her language skills have proven to be beneficial in being able to navigate between people of different backgrounds as the world is increasingly connected.

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