

**INCENTIVIZING VACCINATION UPTAKE****Amal John James\*, Abdulla Shareef, Dhanya Dharman and Shaiju S. Dharan**

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Vaccine hesitancy, identified in 2019 by the World Health Organization as one of the major threats to global health, has become a potentially more important issue during the COVID-19 pandemic. After a year of worldwide morbidity, mortality, social distancing, and lockdowns, and despite the development of several clinically tested and efficacious vaccines, not everyone is willing to be vaccinated. In light of the devastating health, economic, and social effects of the pandemic, the availability of effective vaccines represents an important component of the hope to return society to normalcy. However, some have expressed concerns regarding the fast-tracked new technology involved with the development of COVID-19 vaccines, and these, along with the well-established concerns of vaccine opponents, have contributed to substantial hesitance regarding the willingness to seek

and receive these vaccines. For instance, a nationally representative survey conducted in March-April 2020, with sample sizes ranging from 1041 (Ireland) to 2025 (UK), reported rates of potential acceptance of COVID-19 vaccines of 65% in Ireland and 69% in the UK.<sup>[1]</sup>

A more recent 32-country study conducted before vaccine approval (October December 2020; n = 26 758), with sample sizes between 500 and 1500, found various levels of potential acceptance regarding COVID-19 vaccines. Results ranged from 91% of individuals who reported likely vaccine acceptance in China and India to 81% in the UK, 66% in the US, and 44% in France.<sup>[2]</sup> In Israel, a country with a population of 9.3 million, a sufficient supply of the Pfizer-BioNTech vaccine was obtained in late 2020 and vaccination began on December 20, 2020. The vaccination program began with health care staff, people aged 60 years and older, and those with other risks (eg, immunodeficiency, chronic lung disease, diabetes). Vaccination of younger groups followed within 1 month. By February 20, 2021, 40% of eligible citizens aged 16 years and older and more than 80% of those aged 60 years and older

had received 2 vaccine doses.<sup>[3]</sup> This high vaccine uptake resulted from a well-organized vaccination drive that was conducted by the 4 national health maintenance organizations, which provide insurance for all citizens, and offered easy access throughout the country. However, large sectors of the population were initially slow to receive the vaccine. Organized antivaccination groups with a strong social media presence have contributed to mounting anxieties concerning vaccination both in Israel and worldwide.<sup>[4]</sup> In an attempt to increase vaccination rates toward achieving herd immunity, reduce the strain on the health care system, and remove societal restrictions, the government considered various incentives and penalties. Incentives have been used previously to encourage vaccination; for example, Australia's "no jab no pay" child benefit scheme,<sup>5</sup> various financial or nonfinancial benefits such as food vouchers or infant products, or the requirement in many US states for children to be fully immunized before starting school. Some proposals in the US have suggested considering financial incentives for COVID vaccination.<sup>[6]</sup> The Israeli Ministry of Health has developed a different model of incentives intended to compensate for the months of social restrictions that have characterized the pandemic. This proposed model, termed the "green pass," would allow access (currently limited to 6 months) to social, cultural, and sports events, as well as to gyms, hotels, and restaurants, for individuals with immunity, whether based on having recovered from COVID-19 or being fully vaccinated (1 week after the second dose). The green pass would also give exemption from quarantine (ie, the need to isolate for 10-14 days after contact with a confirmed COVID-19 case or upon returning from international travel).<sup>[7]</sup> The aim of the pass is to encourage citizens, including those at lower risk of severe COVID-19 disease, to receive vaccination in a national attempt to achieve 95% immunization rate, presumably a sufficient percentage to reach herd immunity. As opposed to traditional incentives, the green pass allows entry to certain places for individuals who have been vaccinated while penalizing those who have not. Individuals who have been vaccinated can download the pass from the Israeli Ministry of Health app or website, or use a printed document with a QR code. They will be required to show this permit to purchase tickets for events or on entry to certain venues. Pass forgery is regarded as a criminal act punishable by fine or incarceration. Media campaigns have been promoting the green pass, transmitting messages of mutual social responsibility associated with getting vaccinated and using celebrities to influence social norms surrounding vaccination. This proposal has been met with both enthusiasm and some opposition, given the ethical and legal issues it raises, potentially creating a basis for discrimination based on vaccination status. Fluctuations in COVID-19 vaccination rates in Israel have coincided to some extent with various actions and

statements regarding incentives and penalties associated with vaccination (e Figure in the Supplement).<sup>[8]</sup> Exemptions from quarantine and the promise of lifted restrictions and freer movement may have encouraged some individuals who were uncertain about vaccination to receive it. However, although incentives may increase vaccination rates somewhat, they may not be sufficient to overcome health concerns or doubts regarding efficacy and safety of these novel vaccines. In addition, it is clear that access to vaccines varies widely within and between countries. In a recent survey conducted in 2021, among 503 Israelis, 21% reported not intending to be vaccinated soon. Of these individuals ( $n = 106$ ), 31% said the offer of a green pass and the associated benefits would possibly or definitely persuade them to get vaccinated, whereas 46% said that incentives would not persuade them.<sup>9</sup> Israel has considered compulsory vaccination. The mere suggestion of a law that would make COVID-19 vaccination obligatory, and reports of incidents in which employees in the health care or education systems have been forbidden from entering the workplace for not being vaccinated, have resulted in antagonism and increased distrust among individuals who were already concerned about infringement on citizens' rights. It seems that an approach of mandatory vaccination and penalties for failure to comply will be abandoned and replaced by the incentives promised by the green pass (which came into effect on February 21, 2021). In light of this incentive-based approach, and to increase accessibility, vaccination has been made increasingly available in areas with low rates, including minority areas; for example, mobile vaccination units have been brought to Bnei-Brak, an ultraorthodox Jewish city; to central nightlife areas in Tel Aviv; and to geographically remote Arab villages, accompanied by experts who can answer questions, along with free food or drink to attract those who are hesitant or undecided about vaccination. The early rollout of the COVID-19 vaccine in Israel, and the relatively high vaccination rate per population, can provide helpful information for other countries that may wish to develop incentive schemes to achieve higher vaccination rates. Issues of equity, with groups of low socioeconomic status initially demonstrating lower vaccination rates despite higher disease burden, should be addressed with outreach actions. Other countries, including Chile, Germany, and the UK, have discussed the use of "immunity passports." It has been suggested that these be considered alternatives to enforcing strict public health measures, or allowing unlimited infection spread, both of which would exacerbate inequalities; thus, the "least restrictive alternative" should be favored.<sup>10</sup> Creative use of incentives is likely to boost vaccination rates in some groups, whereas other groups will need more to allay their concerns, which should not be dismissed.

To build trust, authorities need to understand these concerns and provide appropriate, transparent, and easily accessible information, including empirical data on vaccine effectiveness in the population, on adverse effects of COVID-19 in different population groups, and on the relative health risks from contracting COVID-19 vs from receiving the vaccine. In parallel, the Israeli parliament passed a bill on February 24, 2021, allowing the Israeli Ministry of Health to transfer personal identification of people who have not yet received their first vaccine dose to the local authorities and to the Ministry of Education (to improve the low vaccination rates among educational staff). This bill, which raises concerns about citizens' right to autonomy over their body and free choice about whether to receive the COVID-19 vaccine, might detract from the effect of the green pass on vaccination acceptance. The effectiveness of the green pass may be observed in changing vaccination rates in the coming weeks in different age groups. Surveys could evaluate individuals' motivation for vaccination and the role of the green pass in that decision. Although the proposed green pass model provides little more than freer movement, once adopted, after months of restrictions it certainly could be perceived as an incentive. If this model is to be implemented, all barriers to vaccination must be removed for individuals who want to receive the vaccine, including obstacles related to access, logistics, and health literacy, as well as provision of reliable information to help people make an informed and free choice.

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