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Commentary

Lessons from an ally: learning from Israel to vaccinate the American people

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The United States and Israel share national tragedies resulting from the COVID-19 pandemic in 2020 and 2021. In data from more than 200 countries, the US currently leads the world in the number of COVID-19 cases (26 million) with deaths at 1311 per million people, while Israel ranks 27th worldwide in total cases (619,150) with deaths at 493 per million people (<https://www.worldometers.info/coronavirus/>). Many of these COVID-19 cases and deaths stem from national failures to sufficiently adopt and enforce non-pharmaceutical interventions (NPIs) [1].

However, the two nations diverge considerably in how they are responding to such failings, particularly in their efforts to vaccinate their populations against COVID-19. Despite the robust historic legacy of the US in terms of vaccine discovery and innovation [2], which included programs supported by the US National Institutes of Health to first identify the spike protein as a coronavirus vaccine target [3,4], it has already fallen far behind Israel in COVID-19 vaccination coverage. As of January 26, 2021, the US has vaccinated approximately 23 million Americans with one or more doses of COVID-19 vaccine (<https://ourworldindata.org/us-states-vaccinations>), representing less than 10% of the US population. In contrast, Israel has already immunized 40% of its population (<https://ourworldindata.org/covid-vaccinations>), including at least three-quarters of individuals over the age of 60 [5]. In fact, Israel leads the world in this category and plans to fully vaccinate the nation by March 2021 [5]. With its proposed “100 million doses in 100 days” [6], modest ambition from the Biden Administration, the United States might only reach about one-third of the US by the time Israel completes its COVID-19 vaccination program.

There is no question that at 9 million people, Israel pales in its size and diversity compared to the United States. Yet, there are important aspects of Israel's vaccination program that might prove helpful for America. Here we summarize some of those elements, with recommendations on how the United States might apply lessons learned from the experience in Israel.

1. Liberalize guidelines

The fewer restrictions, the better. While Israel initially set and maintains priorities to vaccinate health care workers and citizens over the age of 60, the core of the mission is to vaccinate as many people as possible, as quickly as possible [7]. There are not investigations or penalties for vaccinating individuals who do not fit high priority criteria [8]. In removing legal obstacles, critical doses have not gone to waste. The United States should advise administering a vaccine to anyone over the age of 16 who is willing to be inoculated without fear of legal repercussions if vaccine is available. Israeli vaccination clinics are free to utilize unused doses at the end of the day to anyone who belongs to the clinic HMO and is physically available. Israeli clinic receptionists are instructed to blast text messages to patients, friends, and acquaintances in the area to walk in for leftover doses resulting in higher rates of vaccination and reduced waste without fear of penalty. Rather than ensnaring its population in red tape, the United States should ensure equity by opening vaccination sites in low-income neighborhoods or communities of color, as well as in areas with high percentages of older populations. The US needs to maximize efforts to proactively reach older and high-risk Americans. Reserves should only be maintained for and delivered to those bound to long-term care facilities and the incarcerated. Indeed, another lesson from Israel, is to ensure the vaccination of prisoners [9].

There is much discussion of Israel obtaining large quantities of vaccine relative to the population through early contracts with pharmaceutical companies as the secret to their success [10,11]. The United States will certainly need additional supply and the help of new vaccines in the pipeline for approval to break community transmission and meet the demand of the population. This will include introducing new COVID-19 vaccines beyond the two mRNA vaccines (Pfizer-BioNTech and Moderna), which are difficult to accelerate for production in sufficient quantities. The US urgently needs to release the two adenovirus vaccines (J&J and AstraZeneca-Oxford), and protein-based vaccines. Anything the US can do to expedite production for supply is critical.

2. Expand number and size of vaccination sites

The United States must make vaccines easily available to citizens. Israel's healthcare infrastructure of universal health insurance with all citizens and permanent residents belonging to one of four HMOs, made it easier to contact individuals and identify vaccination sites to reach large portions of the population. It also allowed for a built-in system for tracking individuals who have been vaccinated and determining when they will require second doses [5].

While the US cannot transform its fragmented healthcare infrastructure overnight, it can create mass vaccinations centers in high density areas such as that created in Tel Aviv's Rabin Square with the capability of vaccinating 5000 people per day [12]. Houston's municipal leadership and the Harris County Department of Public Health demonstrated that the US can create high throughput systems with relative ease if the appropriate resources are made available, such as the mega-site vaccination center created in Minute Maid Park, the first mass-inoculation site of its kind in the United States [13]. The US should be opening stadiums across the country as vaccination centers, and not relying on a smaller network of cobbled together commercial pharmacies and clinic sites in order to reach as many people as possible.

3. Vaccine tracking

Israeli HMOs were able, to a great extent, to identify and prioritize high risk citizens and communicate with them individually for vaccine distribution information and appointments. Every Israeli citizen has an electronic medical record and ID number that, notwithstanding limitations grounded in privacy concerns, can be utilized for this purpose. The United States does not have this infrastructure available, and too often in its place is an aggressive "health freedom" or "medical freedom" movement that resents government intrusion and oversight [14]. The US does, however, have two comprehensive safety net insurance organizations of Medicare and Medicaid, which collectively cover individuals over the age of 65, the disabled, and the poor. The US could identify and contact all individuals with Medicare or Medicaid by phone or mail for vaccination appointments as priority groups. This contact and appointment method would not require the computer literacy that has largely been required for people to obtain vaccination appointments in the United States. This method would also allow for the ability to communicate information in a patient's identified preferred language of communication as indicated in the medical record. The US also can contact and prioritize vaccination appointments for individuals covered by the Indian Health Service which provides care for approximately 2.5 million Native People (<https://www.ihs.gov/newsroom/factsheets/ihsprofile/>), a population that has been disproportionately affected by COVID-19 (<https://www.cdc.gov/mmwr/volumes/69/wr/mm6934e1.htm>).

As vaccines become more available, to reach an entire regional population and the uninsured, the US does have wireless emergency alerts that cast critical information such as Amber alerts to all mobile devices in a given geographic area. The US can use these systems to announce regional vaccination sites and links for appointments if required. Vaccine distribution is critical information, and casting alerts to all phones in a region is more equitable than making such announcements via Twitter or obscure health department websites. Still another option is the Kinsa App-based system for infectious disease surveillance (<https://www.kinsahealth.co>), which could be tailored specifically for vaccines. Israel has not been plagued by the same technological glitches of appointment booking and tracking that have hampered American vaccination efforts as Israel's HMOs have a robust and wide-reaching technologic infrastructure in place intended for the size of the population it serves [15]. This includes centralized national call centers per HMO for scheduling vaccination appointments, in addition to HMO based smart phone applications which existed prior to the pandemic for patients to navigate their own appointments and medical records and were then modified to include specific vaccination appointment capability. In the short term, the US needs to invest real resources in creating functioning websites and phone lines for booking appointments and collecting information necessary for follow up. Currently in the world's greatest superpower,

home to Silicon Valley, local health departments are cobbling together appointments and information using free rudimentary platforms generally intended for private party RSVPs, potluck sign-ups or small office meetings [16,17]. Their efforts are valiant, their quivers empty, and we need to do better.

4. Centralized storage and airports

To reach more remote areas and allow for parallel vaccination campaigns, Israel maintains a central vaccine storage area near its largest airport. The storage facility is capable of maintaining millions of doses in freezers, the doses needed for smaller or remote areas are repackaged into pallets as small as 100 doses and sent expeditiously to their destination simultaneously as larger pallets are sent to vaccination sites in greater population centers [11]. While acknowledging the vast difference in size between Israel and the US, the latter needs to centralize distribution near major airports. Airports themselves also represent potentially attractive sites for both maintaining vaccines and opening up hubs with vast capabilities for car parking and van or bus transportation to the vaccination sites.

5. Communications

The United States will not be successful without a coordinated communications campaign. Israel is using leaders and credible messengers of communities with greater anticipated vaccine hesitancy such as Arab Israelis and the Ultra-Orthodox. Messengers communicate with specific communities, and the government has taken care to make vaccines available amongst those populations [18]. In combating vaccine hesitancy and reducing virus transmission, effective messaging cannot be haphazard. The US needs a coordinated, evidence-based and well-resourced communications strategy with the full support of the federal government. American leaders must realize that this is not a political issue, but that the public health is a matter of national and economic security. Israel's Prime Minister Benjamin Netanyahu, who is mired in political controversy [19] and facing a re-election battle in March 2021, was the first to be vaccinated in the country [20]. He was followed by other highly visible politicians and celebrities as part of a national vaccination campaign. Our political leaders on both sides of the aisle must unite in the spirit of a wartime effort to vaccinate the people of the United States and protect the public health.

6. Future directions

A greater social safety net will help us now and prepare us for future adversity. Under Israel's National Health Insurance Law, all citizens and permanent residents must belong to one of four major HMOs from womb to tomb [21]. Within the HMOs there is a comprehensive standard basket of services that must be provided to all citizens and residents regardless of income. While wealthier individuals can opt to pay for premium services within an HMO, taxes cover the standard basket of services, and the poor or working class do not incur fees or debt for use of health services. This infrastructure allowed for rapid allocations of vaccines to Israel on the part of pharmaceutical companies eager to optimize data and services from HMO systems in order to showcase the feasibility and impact of a rapid vaccine rollout [22]. It also allowed for significantly faster distribution of vaccines, greater trust and familiarity with the healthcare network among the general population, and facile identification of at-risk individuals. In a population where all citizens have regular affordable access to health services, vaccination campaigns are significantly easier.

In the aftermath of the pandemic, Israeli individuals will not be saddled with the financial instability of medical expenses during one of the worst public health crises in modern history. Israelis know they will not have to choose between life and poverty when battling COVID-19 and its sequelae. To learn from our allies, to work toward a healthier and more prosperous future, and to be better prepared for the next threat to our national security, we must rethink our social safety net and how we serve the public's health as a whole.

Declaration of competing interest

Peter Hotez is a developer of a COVID-19 vaccine construct, which was licensed by Baylor College of Medicine to Biological E Ltd., a commercial vaccine manufacturer for scale up, production, testing and licensure.

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Ann Blake*

Department of Pediatrics, Baylor College of Medicine and Texas Children's Hospital, Houston TX, USA

Peter J. Hotez

Department of Pediatrics, Baylor College of Medicine and Texas Children's Hospital, Houston TX, USA

James A Baker III Institute of Public Policy, Rice University, Houston TX, USA

Hagler Institute for Advanced Study at Texas A&M University, College Station, TX, USA

Avi Israeli

Braun School of Public Health, Hebrew University - Hadassah Faculty of Medicine, Jerusalem, Israel

Ministry of Health, Jerusalem, Israel

David Chinitz

Braun School of Public Health, Hebrew University - Hadassah Faculty of Medicine, Jerusalem, Israel

* Corresponding author. Section of Neonatology, Department of Pediatrics, Texas Children's Hospital & Baylor College of Medicine, 6621 Fannin Street, Houston, TX 77030 Fax: +1832 825 2799. E-mail address: Ann.Blake@bcm.edu (A. Blake).

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