



# A Higher Number of Covid19 Cases and Fatalities in Israel Phased With the Start of the Mass Vaccination

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The manuscript proposes the major parameters needed to monitor the Israeli Covid19 outbreak. According to,<sup>1</sup> these are the number of infected, tested, and the share of the positive tests, recovered, succumbed. Additionally, it is also proposed the number of vaccine doses administered, the share of the population who received at least 1 vaccine dose, and the share of the population fully vaccinated. While it would be necessary to also have a breakdown of the parameters in the partially and fully vaccinated and the control group, and a further subdivision for age and comorbidities, these data are missing. It is shown as the number of Covid19 cases and fatalities in Israel have increased phased with the start of the mass vaccination, and they have also been higher than in neighboring countries.

Israel is the leading country for Covid19 vaccines,<sup>2</sup> Figure 1.a, b, c. As of Mar. 1, 2021, 55.1% of the population received at least 1 dose of the 2-shots Covid19 vaccine. This percentage is 35.2% in the United Arab Emirates (Feb. 23, 2021), 29.9% in the United Kingdom (Feb. 28, 2021), 17.6% in Bahrain. The share of the population that has been fully vaccinated is 39.7% in Israel. It is 22.1% in the United Arab Emirates (Feb. 23, 2021), and 1.2% in the United Kingdom (Feb. 28, 2021). The other middle east countries have negligible percentages of both partially and fully vaccinated. The vaccine administered in Israel is the 2 shots BioNTech-Pfizer mRNA vaccine. Also, the Moderna vaccine is approved in Israel, but practically it has not been administered yet.

Since the time the vaccinations started on 19-December-2020, the number of cases and the share of positive cases has not been reducing but growing, Figure 1.d, e, f. The number of cases in isolation is misleading, as it depends on the number of tests, and who specifically gets tested.<sup>1</sup> As the testing practices drastically differ between neighboring countries, comparisons are difficult. However, the time series have value for every specific country to describe the local development of the outbreak. A strict nationwide lockdown was eventually enforced on 27-December-2020 to reduce the infection rate. Nevertheless, January was the deadliest month, with more than

1,000 Covid19 fatalities,<sup>2,3</sup> Figure 1.g. The trend in fatalities is ultimately the most important indicator to drive policies.

Only fragmentary information has surfaced about the share of positive cases between those who were partially or fully vaccinated and those who did not receive any vaccine. According to ministry data reported by the media on 19-January-2021,<sup>4,5</sup> 12,400 of 189,000, or 6.6% resulted positive after receiving a vaccine dose. This percentage was above the share of positive cases in the general population, at the time below 5%. Most of these people were tested shortly after the first shot. 1,410 tested positive 2 weeks after the first shot. 69 tested positive after both vaccine doses. It is unknown how many were tested in the different categories.

Despite claims of reducing cases because of vaccinations,<sup>6,7</sup> this has been at the time an artifact of the reduced number of tests, and then of the increased restrictions. Since end-December-2020, most viral infections in Israel are from a new virus strain likely imported from the United Kingdom.<sup>8,9</sup> While there are certainly many confounding factors to mask the efficacy of vaccines, it must be mentioned that proof of efficacy is a share of positive cases in between those who received 1 or 2 shots compared to those who did not receive any shot in the same group for age or comorbidities. The previously mentioned data surfaced 19-January-2021<sup>4,5</sup> does not evidence a lower, but a higher share of positive cases, in between those who received 1 shot of the 2. Comparison of the number of cases, the share of positive, number of fatalities, and number of vaccinations of Israel and the neighboring countries shows Israel performed much worse than every other country of the middle east with

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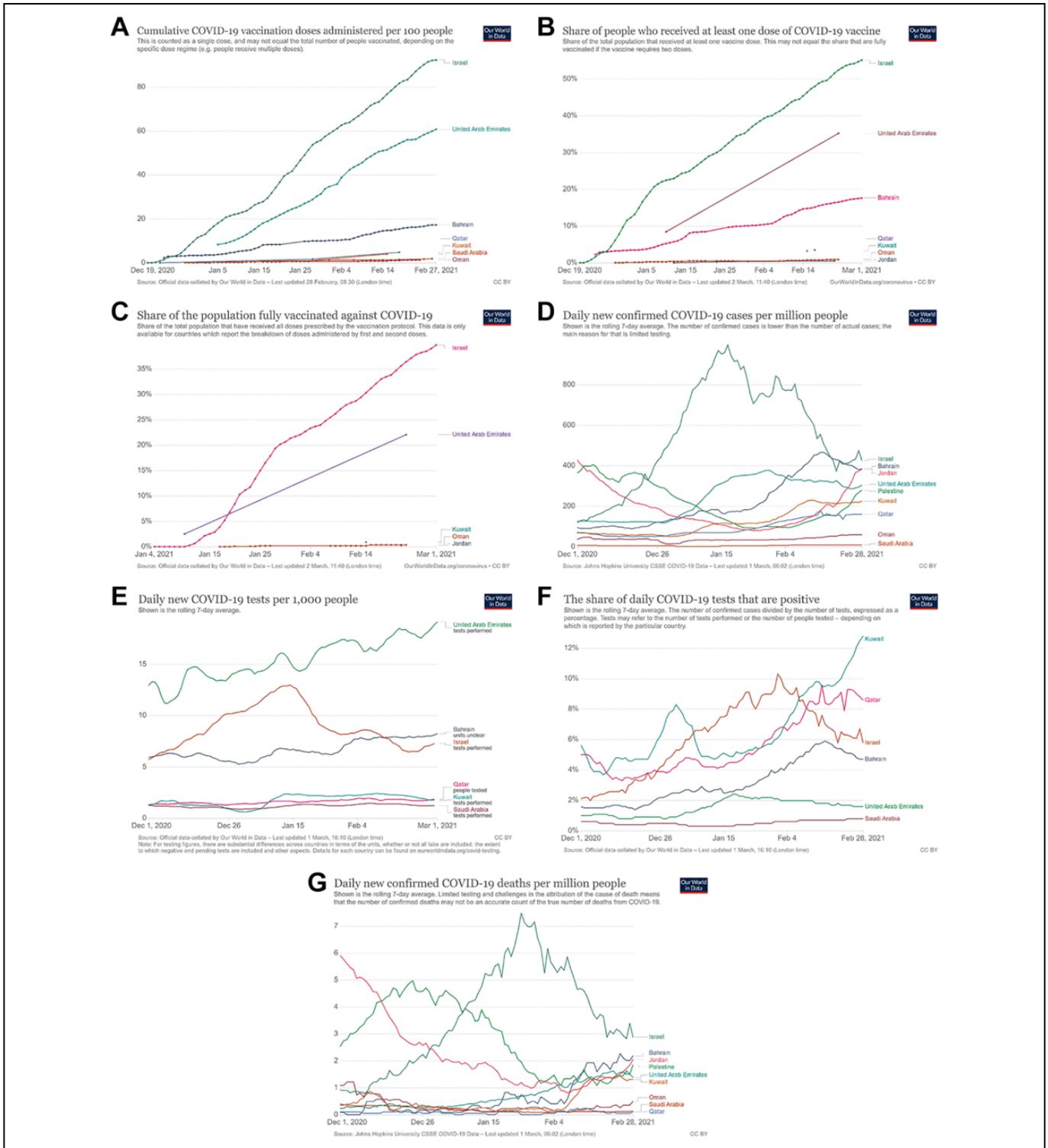
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**Figure I.** Share of the population partially (a) or fully vaccinated (b), and number of doses administered for 100 people (c) in Middle east countries. (d) number of new cases. (e) number of new tests. (f) share of cases that are positive. (g) number of new fatalities. Images from OurWorldinData.org,<sup>2</sup> CC BY.

data available when also accounting for the quality of the health system.<sup>2</sup> A better understanding may only follow the availability of a proper statistic of who specifically is tested positive within the vaccination group compared to the control group.

Claims of the efficacy of vaccines in Israel based on a one-page preprint work<sup>10</sup> reporting of data collected between 19-December-2020, and 15-January-2021, in complete disagreement with the ministry data published

19-January-2021,<sup>4,5</sup> and the data here presented in Figure 1, are inappropriate, even if supported by an editorial in *Nature*.<sup>11</sup> While there are certainly many confounding factors, phased with the mass vaccination, Israel experienced in January the deadliest month for Covid-19 infection, with fatalities, the most relevant clinical outcome, much higher than every other country in the middle east.

The comparison of the available Covid-19 numbers of Israel and the neighboring countries is provided to stimulate discussion. Most of the pieces of the puzzle are missing and this manuscript is specifically asking for these data. Not having all the parameters needed, trying to explain the observed pattern is very difficult. The correlation between the increasing number of vaccinations and the increasing number of cases and then fatalities may be only accidental and certainly not proof of causation. In between the possible explanations of the apparent trend, if proved real, it must be mention that:

1. having received only 1 dose of the 2 doses vaccine may not protect against infection, but rather the opposite, increase the risk of infection;
2. the latest variant strain may defy at least partially the vaccine, as it is also suggested by the experience in South Africa with the local strain and another vaccine formulation<sup>12,13,14</sup>;
3. the mass vaccination has increased the contacts between people, at the time of community infection, and thus the opportunity to spread the virus, about the same as overtesting and over enforcing.<sup>1</sup>

Data such as those reported in Figure 1 must be complemented by aggregation in partially or fully vaccinated and control groups, and age and comorbidities categories. These data are of paramount interest during this critical pandemic period.

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### Author Biography

**Alberto Boretti** received his PhD in 1988. He has been senior researcher and manager in the industry and then senior research fellow, associate professor and professor in the university. He has

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