

## Equations

Past week daily average cases (y-axis value)

Past week daily average cases =  $\frac{Dc_n + Dc_{n-1} + \dots + Dc_{n-6}}{7}$ , where DC is the number of daily cases

$$\text{Past week daily average cases per 100K} = \frac{\text{Past week daily average cases}}{\text{country\_region population}} \times 100000$$

Adjusted people vaccinated (x-axis value)

For the meaning of vaccination variables, see vaccination variables explained in the next section.

*For countries where people\_fully\_vaccinated and people\_vaccinated are available*

Adjusted people vaccinated number of people = people\_fully\_vaccinated + 0.5\*(people\_vaccinated - people\_fully\_vaccinated)

*For countries where total\_vaccinations is available but people\_fully\_vaccinated and people\_vaccinated are NOT available*

Adjusted people vaccinated number of people = 0.5\* total\_vaccinations

The reason why some countries/regions uses this equation of 0.5\*total\_vaccinations is because these countries/regions only provide total\_vaccinations number. As the number for fully vaccination is 2 (dosages) for these countries, I have used 0.5\*total\_vaccinations as the adjusted people vaccinated for these countries.

$$\text{Adjusted people vaccinated rate (\%)} = \frac{\text{Adjusted people vaccinated}}{\text{country\_region population}} \times 100$$

## Vaccination variables explained

The information below is from the [Github data source](#) of Our World in Data.

- `people_vaccinated` : total number of people who received at least one vaccine dose. If a person receives the first dose of a 2-dose vaccine, this metric goes up by 1. If they receive the second dose, the metric stays the same.
- `people_vaccinated_per_hundred` : `people_vaccinated` per 100 people in the total population of the country.
- `people_fully_vaccinated` : total number of people who received all doses prescribed by the vaccination protocol. If a person receives the first dose of a 2-dose vaccine, this metric stays the same. If they receive the second dose, the metric goes up by 1.
- `people_fully_vaccinated_per_hundred` : `people_fully_vaccinated` per 100 people in the total population of the country.

Note: for `people_vaccinated` and `people_fully_vaccinated` we are dependent on the necessary data being made available, so we may not be able to make these metrics available for some countries.

## An example of how we calculate our metrics

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4 people take part in a vaccination program, to be given a vaccine that requires 2 doses to be effective against the disease.

- Dina has received 2 doses;
- Joel has received 1 dose;
- Tommy has received 1 dose;
- Ellie has not received any dose.

In our data:

- The total number of doses administered ( `total_vaccinations` ) will be equal to `4` (  $2 + 1 + 1$  );
- The total number of people vaccinated ( `people_vaccinated` ) will be equal to `3` (Dina, Joel, Tommy);
- The total number of people fully vaccinated ( `people_fully_vaccinated` ) will be equal to `1` (Dina).

## Different equations used for vaccination rate

Note that the plot presented in [Our World in Data](#) (also the data source provider) uses the number of at least one dose of COVID-19 vaccine (`people_vaccinated`) to plot the vaccination rate, while my one uses the equations shown in the Adjusted people vaccinated (x-axis value) section. Therefore, the rate on my dashboard plots would be different from theirs.