

Making sense of the WHO COVID-19 estimated excess deaths

The World Health Organization (WHO), Geneva, Switzerland has estimated that in India about 10 times as many died up to the end of December 2021 due to COVID-19 compared to the officially reported count¹. For the globe as a whole, the un-

dercounting factor was nearly 3x. India was quick to reject these estimates which were based on many modelling assumptions. Here, we will report a simple two-dimensional map to put these WHO estimates in a relative context.

The data available in the public domain were downloaded². As these were in the form of Excel files, it was easy to compute the total estimated excess deaths per million of the population for all the countries in the database for 2020–21 and plot them as a two-dimensional map against the size of the individual countries (Figure 1). Note that the size of the country changes by six orders of magnitude and the cumulative excess deaths per million of population up to the end of December 2021 range from –3886.58 for Saint Kitts and Nevis (KNA) to 8733.56 for Peru (PER). India (IND) at 3410.63 excess deaths per million has nothing to be embarrassed about. Other countries of comparable size (population differing only by order of magnitude) include the United States of America (USA), Brazil (BRA), Indonesia (IDN) and Mexico (MEX) (Table 1). Table 2 shows the cohort of countries that form a skyline to dispersion on the two-dimensional map of WHO estimated excess deaths per million up to the end of December 2021 vs population.

China (CHN) and Japan (JPN) remain enigmas. In the Sinosphere region comprising China, Taiwan, Korea and Singapore, the pandemic seems to have spread in startlingly different ways, perhaps due to immunity from the 2002–04 pandemic caused by an older strain of severe acute respiratory syndrome coronavirus (SARS-CoV-1), or from rigorously enforcing a zero-COVID strategy, or both.

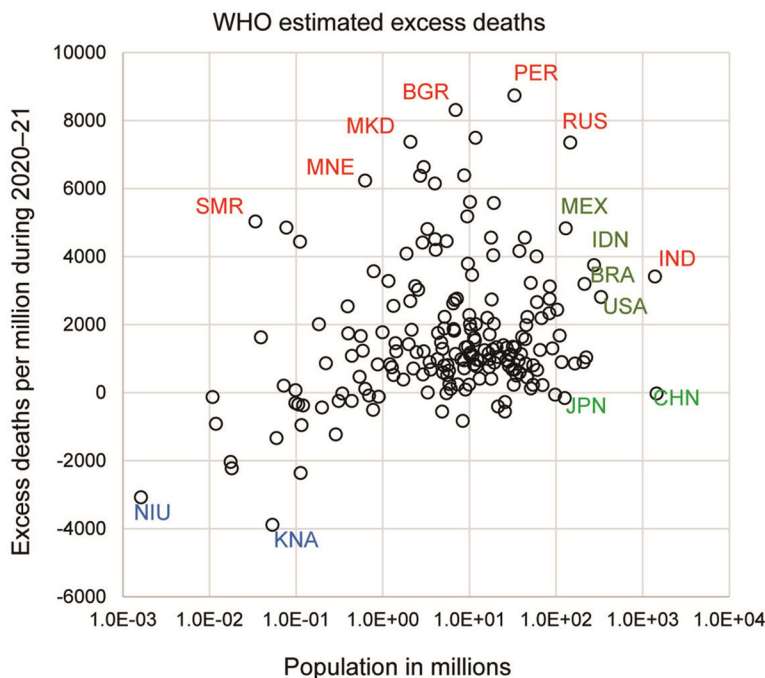


Figure 1. The two-dimensional map showing the cumulative WHO estimated deaths per million up to end of December 2021 against the size of the individual countries.

Table 1. A cohort of countries of similar size which have WHO estimated excess deaths per million up to end of December 2021 that are comparable to India

Country	iso3	Population in millions 2020–21 (average)	Estimated excess deaths per million 2020–21
United States of America	USA	331.96	2809.97
Brazil	BRA	213.28	3194.07
India	IND	1386.71	3410.63
Indonesia	IDN	274.94	3745.78
Mexico	MEX	129.60	4829.74

Table 2. A cohort of countries forming a skyline to dispersion on the two-dimensional map of WHO estimated excess deaths per million up to end of December 2021 vs population

Country	iso3	Population in millions 2020–21 (average)	Estimated excess deaths per million 2020–21
San Marino	SMR	0.03	5028.42
Montenegro	MNE	0.63	6229.97
North Macedonia	MKD	2.08	7369.67
Bulgaria	BGR	6.92	8307.06
Peru	PER	33.17	8733.56
Russian Federation	RUS	145.92	7349.82

- <https://www.who.int/data/stories/global-excess-deaths-associated-with-covid-19-january-2020-december-2021> (accessed on 7 May 2022).
- <https://www.who.int/data/sets/global-excess-deaths-associated-with-covid-19-modelled-estimates> (accessed on 7 May 2022).

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