The "Excess Mortality" Controversy and its lessons.

……..an explanatory, position paper for public understanding of the isssue

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A brisk debate has erupted post the release of World Health Organizations' excess mortality estimates, which in our polarized polity is no surprise. However something good may come out of this debate, for underlying the various positions are several design and governance issues where systemic corrrectives are long overdue. So rather that use this as an occasion for finger pointing, one could focus on the key learnings and required areas of action.

The core of the controversy is that as against an official report of 5.23 lakh COVID deaths (by the national COVID dashboard till date), the WHO has reported 47 lakh *"excess mortality"* for the January 2020 to December 2021 period. Even by the number of claims filed for compensation (there is a provision of Rs 50,000 for every covid 19 death) the number rises only to about 7.5 lakhs. The official government position is that the WHO methodology for arriving at these figures which is based on a modelling exercised is flawed and should not have been used when real figures of deaths were available. For the latter the reference is to a report of RGI on mortality for the year 2020. On the other hand WHO which delayed the release of excess mortality figures for a number of months stands by its estimates. What should the public make of this?

Some basic clarifications help. The Indian government figure most often quoted is of deaths that have been ***directly*** attributed to the covid 19 disease. In contrast *'Excess mortality' is defined as the difference between the total number of deaths that have occurred and the number of deaths that would have been expected in the absence of the pandemic.* COVID-19 excess mortality therefore captures both the direct impact on mortality due to COVID-19 and also its indirect impact. *The WHO's excess mortality figures includes not only covid 19 deaths, but also the deaths due to all other causes.* Given the widespread disruption of essential health services, given the conversion of most major public hospitals to exclusive covid 19 care, and given the worsening social and economic parameters, deaths due to all other causes

have also increased in this period. The WHO has *not* given any figures on COVID deaths and not commented on India's Covid-19 mortality count, and the Indian government has not published any estimate of All Cause Mortality.

The figure that commentators are using as a measure of all cause mortality is the RGI report " Vital Statistics of India based on the Civil Registration System, 2020" (referred to henceforth as CRS 2020 Report) which has the *numbers for registered deaths* in the year 2020. This report was released just two days before the scheduled release of the WHO Report. Again a few clarifications about this report. Death registration in many states of India is very incomplete, and registered deaths are only a part of all deaths. To estimate mortality rates India has always used the Sample Registration Survey. The total number of estimated deaths from SRS is compared against registered deaths to provide the information of percentage of completion in death reporting in each state. The SRS for both 2020 and 2021 is not available and hence there is no reliable measure of completion of death reporting. Just before the pandemic, in 2019 report, RGI records that only about 51.6% deaths were registered in Bihar and only 63.3% deaths were registered in Uttar Pradesh. This couldn't have become above 90% for 2020. a year in which where there was so much disruption of essential health service. As corroboration of this the NFHS-5 (2019-21) report that was recently published, states that about 71% deaths are actually recorded nationally with only about 36.4% getting registered in Bihar and 47.7% registered in Uttar Pradesh.

Even if we see the CRS 2020 report, the registered deaths in Bihar of 4.25 lakhs is less than the registered deaths of West Bengal (6.06 lakh), Tamil Nadu (6.87 lakh), Karnataka (5.51 lakh), Rajasthan (4.77 Lakh), Madhya Pradesh (5.24 lakh) and Andhra Pradesh (4.55 lakh) even when the mid-year population (RGI's CRS report 2019) of Bihar at 12.01 crores is much higher than the population of 9.71 crores of West Bengal, 7.58 crores of Tamil Nadu, 6.59 crores of Karnataka, 7.76 crores of Rajasthan and 8.26 crores of Madhya Pradesh and 5.23 crores of Andhra Pradesh. Similarly, Uttar Pradesh with a mid-year population of 22.59 crores (over 4 times that of AP), has registered deaths of only 8.73 lakhs (less than twice the registered deaths of AP). If registered deaths were the actual total deaths in UP

and Bihar, the mortality rates per thousand for Bihar and UP would be just 3.53 and 3.86 respectively as against mortality rates of RGI's in 2019, when the mortality rates of UP and Bihar were 6.6 and 5.8 respectively. Therefore, actual mortality in India is significantly more than the registered mortality of 81.158 lakhs. Even if we assumed actual mortality in UP and Bihar to be equal to that of 2019 and leaving out several other small states that have less than 100% registration, the actual mortality numbers would be higher by 9.56 lakhs than the deaths registered in 2020. In comparison, the excess mortality estimates for 2020 by the WHO are just 8.32 lakhs.

Further one notes that of the 47 lakh excess mortality estimate by WHO, most of it (39 lakhs or 82%) was in 2021, and the death registration figures for 2021 is not yet available. So when total mortality numbers are not yet available, and excess mortality based on records are not possible, it is better to be guided by the estimates..

So the other big question would be, as to how reliable is the WHO's estimate of excess mortality. The WHO has estimated excess mortality of 47 lakhs for India (8 lakhs in 2020 and 39 lakhs in 2021) with confidence interval of 33 lakh to 65 lakh, is based on 17 states data that it reportedly obtained from the information available in public domain on state's websites and through the RTI. The figures, therefore are not drawn from other nations, nor has complex modelling been done. It is simply extrapolating from the available data of 17 states and past patterns of mortality.

Since the official estimates of actual all cause mortality for 2021 from India will not be available before 2023, we may obtain and publish the registration of deaths from the states/ UTs, particularly from those states known to have nearly 100% deaths registration to get a sense of increased in registered mortalities for 2021.

One way of assessing reliability of the WHO study is to compare with the figures that have been obtained by other studies and reports. There are at least 6 internationally published studies available and they give similar numbers.

1. One of the earliest of these, by Anand, Sandefur and Subramanian (Centre for Global Development) provided in June 2021, estimates that ranged

from 3.4 million to 4.9 million, and this was when we were still in the middle of the pandemic. (Anand, Abhishek; Justin Sandefur; and Arvind Subramanian, 2021. "Three New Estimates of India's All-Cause Excess Mortality during the COVID-19 Pandemic." CGD Working Paper 589. Washington, DC: Center for Global Development. https://cgdev. org/publication/three-new-estimates-indias-all-cause-excess-mortality-during-covid-19-pandemic)

2. The Economist published an estimate of excess mortality for all countries and this put India's excess anywhere between 2 million to 9.4 million- or 140 to 670 per 100,000 population. (Economist, Nov 2nd 2021 (Updated May 6th 2022)
3. In a lead article in the Journal Science, Prabhat Jha et al. estimated that India's cumulative COVID deaths by September 2021 were six to seven times higher than reported officially. (Prabhat Jha COVID mortality in India: National survey data and health facility deaths; 2022; J Science: 667-671; 375; 6581, doi:10.1126/science.abm5154 https://www.science.org/doi/abs/10.1126/science.abm5154)
4. Murad Banaji and Aashish Gupta's estimate of excess deaths between April 2020 and June 2021 was 3.8 million (range 2.8 to 5.2) was published as a pre-prient. (Murad Banaji, Aashish Gupta medRxiv 2021.09.30.21264376; doi:https:/doi.org/ 10.1101/2021.09.30.21264376)
5. A more recent Lancet study, COVID-19 deaths between January 1, 2020, and December 31, 2021, states that at the country level, the highest numbers of cumulative excess deaths due to COVID-19 were estimated in India at about 4.07 million – nearly eight times more than the official figures. (Estimating excess mortality due to the COVID-19 pandemic: a systematic analysis of COVID-19-related mortality, 2020–21; COVID-19 Excess Mortality Collaborators Lancet, VOLUME 399, ISSUE 10334, P1513-1536, APRIL 16, 2022); DOI:https://doi.org/10.1016/S0140-6736(21)02796-3.
6. A significant study by Christophe Z. Guilmoto, which did not use the excess mortality method, estimated India's covid mortality at about 3.2 to 3.7 million by late November 2021 – nearly five times the official count.

(Citation: Guilmoto CZ (2022) An alternative estimation of the death toll of the Covid-19 pandemic in India. PLoS ONE 17(2): e0263187. https://doi.org/10.1371/journal.pone.0263187)

Many of these studies, including the WHO Report are not India specific. The WHO report provides global, regional and national comparable estimates of excess deaths covering about 200 countries. Moreover, the preferred and better measure of direct and indirect impact of COVID-19 is the mortality on per capita basis, where India's position at 33rd most affected. This whole narrative of some sort of consipracy to defame india is unfortunate. It would be much better to understand the methodology, the reasons for uncertainity over the data and why such signficant excess mortality got missed, so that we are better prepared for the future. It's not about India, and within India it is not about who is to blame. It is about understanding what needs to be done to improve the systems to make it much more responsive and reliable.

Since we have only 21% registration of causes of mortality, one immedidate lesson is that we have been probably underestimating the pandemic's collateral damage (indirect mortality). This could have been quite high quite due to disruption of essential health services and this would underscore the urgency in building resilience in health systems, so that other essential health services do not get disrupted even as we effectively respond to the epidemic.

Another immediate lesson is the need to strengthen our CRVS so that 100% births, 100% deaths are registered and 100% causes of death (at least at the level of broad catgories) are recorded and this data is made available on a monthly basis at the district level and is open to public scrutiny This was the standard of reliable CRVS that was used internationally and it is time that we aspired to achieve this. Already all CRVS data is computerised, and what is required is the parallel improvement of government processes and transparency. A two year delay to get mortality data and that too at this level of incompletion is simply not acceptable

for an aspirational India. This will help not only in pandemic response but in all of health planning and public health action.

It is not only the CRVS we need to worry about. Under-reporting of deaths and disease has been a problem with other infections also, like with malaria and malnutrition. Stigma and denial also contributed in so small measure to the public under-estimation of the magnitude of the crisis we have all been trhough. So, registration of causes of mortality is critical gap.

We must also learn to work with tentative estimates and varying degrees of uncertainity. There is no doubt that WHO and other scholars will improve on their present estimates, as more data comes in. There is also room to examine these models closely, though as we now know, the Indian estimates are better described as emerging from extrapolation of available state data rather than modelling based on assumed figures. There is a possibility that the figures for excess mortality could come down. But all of this should not lead us to forget the main lesson- that we need to aspire for a much higher level of emergency preparedness and that no nation that cannot assure universal healthcare in normal times, can respond adequately to a pandemic when the healthcare needs increase many-fold. It is much better we accept these numbers as tentative, but reasonable, and shift our focus to improve our health information systems and preparing better for the next pandemic than get mired in a needless controvery over the numbers that only shows India in poor light.