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## Covid-19: Leaked cremation data hint at true scale of China's death rate

Owen Dyer

Cremation figures released and then quickly withdrawn by authorities in China's Zhejiang province appear to confirm widespread doubts about the government's official pandemic death count, and lend support to international forecasts which predicted roughly 1.5 million deaths from covid in the weeks after China abandoned its zero covid policy last December.

In the relatively wealthy and developed eastern province, where more than 99% of all deaths end in cremation, the number of cremations in the first quarter of 2023 was just under 171 000, compared with 99 000 in the first quarter of 2022 and 90 000 in the first quarter of 2021.

Extrapolated across China, this 72% rise in mortality would translate to about 1.5 million excess deaths in the first quarter of 2023, closely matching predictions of several models developed by epidemiologists.<sup>1 2</sup>

In a normal year, first quarter cremation figures for all provinces would be released around September as part of each province's health report. But in June, when provinces released health reports for the fourth quarter of 2022—a time when infections began surging across China—cremation figures were missing for every province. Cremation figures from particularly hard hit cities had already begun to disappear from official data earlier in 2022.

Zhejiang's data release appears to have been inadvertent. The data was soon taken down, but not before being cached by international researchers.<sup>3</sup> An article referring to the data appeared briefly in the Beijing media outlet Caixin but that too was deleted. Chinese social media, however, was abuzz with the revelation.

Ben Cowling, who leads the division of epidemiology and biostatistics at the University of Hong Kong, told *The BMJ* that the new figures, taken together with earlier data from Chinese cities, appeared to support estimates that the "exit wave" as China abandoned its zero covid policy led to "perhaps 90% or more of the population being infected in December and January" and about 1.5 million deaths.

News reports from Chinese cities in December showed overwhelmed crematoriums and staff reporting double or triple the normal workload.

Zhejiang provincial health authorities that month announced that the province of 57 million people was seeing a million new infections a day. Towards the end of December, as the crisis continued to mount, daily reports of covid data from the national ministry of health, already seen as untethered from reality, ceased completely.

China began reporting deaths again in February, at which point it reported 83 150 deaths since the pandemic began. Since then it has only added about 550 deaths to this figure. The figure of 83 150 was already far higher than the sum of individual deaths reported in daily national figures, which is just 5272 since the pandemic began.

Every death reported by China has been from respiratory failure in hospital. This would exclude the many expected deaths from heart, liver, and kidney failure, as well as those occurring outside hospital, which account for at least 80% of deaths according to foreign observers.

Even the 1.5 million figure is seen as conservative by many experts. Zhejiang province has higher vaccine uptake than China's national average and a relatively strong healthcare system. Other hints at the true toll, emerging from other provinces, suggest an even steeper climb in the death rate as China exited zero covid.

Healthcare worker Wang Ning from the eastern province of Jiangsu told Radio Free Asia in late January 2023 that the province had seen a spike in cancellations of household registrations, called hukou, a necessary bureaucratic procedure following death. "In this city 100 people used to die in a month," she said, "but now it's between 300 and 500 people."

That same month, Chen Heyang, a person close to the civil affairs department in Wuhan, said that his home district of Huangpi, home to 900 000 people, had seen "more than 5000 deaths in this one month, which is several times the usual."

The World Health Organization has recorded 121 536 deaths so far in China from the pandemic, but WHO director general Tedros Adhanom Ghebreyesus has said the true figure is "much higher."

At the height of the crisis, on 4 January, WHO emergencies chief Mike Ryan publicly challenged the data being provided. "We believe that the current numbers being published from China underrepresent the true impact of the disease, in terms of intensive care admissions and particularly in terms of deaths," he said.

1 Cai J, Deng X, Yang J, et al. Modeling transmission of SARS-CoV-2 omicron in China. *Nat Med* 2022;28:75. doi: 10.1038/s41591-022-01855-7 pmid: 35537471

2 Du Z, Meyers LA. Estimated covid-19 mortality in China, December 16, 2022 - January 19, 2023. The University of Texas at Austin Covid-19 Modeling Consortium. 3 February 2023. [https://covid-19.tacc.utexas.edu/media/filer\\_public/c6/14/c614cff3-ff41-4355-80c9-7aa21184cd55/du\\_and\\_meyers\\_-\\_china\\_mortality\\_estimates\\_-\\_jan\\_2023.pdf](https://covid-19.tacc.utexas.edu/media/filer_public/c6/14/c614cff3-ff41-4355-80c9-7aa21184cd55/du_and_meyers_-_china_mortality_estimates_-_jan_2023.pdf)

3 Zhejiang Civil Affairs Bureau. Quarterly Statistics Provincial data for the first quarter of 2023. July 2023. <https://archive.ph/pYEKF#selection-461.1-521.14>.

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