

Vaccinate to combat COVID-19 in China

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than promotes academic dialogue with our colleagues in China.

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REFERENCES AND NOTES

- 1. "Asian countries are at last abandoning zero-covid strategies," *The Economist* (2021).
- A. Llupià et al., "What is a zero-COVID strategy and how can it help us minimise the impact of the pandemic?" (Barcelona Institute for Global Health, 2020).
- 3. J. Curtin, "The end of New Zealand's zero-COVID policy," *Think Global Health* (2021).
- Z. Jun, "What justifies China's zero-COVID policy?," Project Syndicate (2022): www.project-syndicate. org/commentary/shanghai-lockdown-whychina-keeps-its-zero-covid-strategy-by-zhangjun-2022-05.

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As W. C. Kirby argues in his Editorial "Zeroing out on zero-COVID" (3 June, p. 1026), the cost of China's strict zero-COVID policy is enormous. From local to regional to international impacts, this policy is likely to increase unemployment and poverty while further disrupting global supply, communication, and cooperation. China should replace its zero-COVID strategy with a plan to increase vaccination rates.

This year marks the largest surge in COVID-19 cases in China since the beginning of the outbreak in 2019 (1). Shanghai was the epicenter of the surge, recording 625,186 positive cases during the city's strict lockdown from 1 April to 1 June (2). Most cases (90.75%) were asymptomatic, and the death rate was only 0.094% (2). Of the 588 people in Shanghai who died from Covid-19 during this time, the average age was 82.9, and all had severe preexisting medical conditions (3). For those above 80, the vaccination rate was a meager 1.3% (3).

Between 10 March and 16 April, each Shanghai resident underwent more than a dozen polymerase chain reaction (PCR) tests, in addition to daily at-home antigen testing (4). Long lines for testing increased the possibility of spreading the virus, and with tens of millions of people taking tests daily, false positives were frequent (5). The cost of massive testing sites and test materials, combined with the required employee salaries, could reach billions of US dollars (6).

Lockdowns and mandatory proactive testing have high social and economic costs as well. People have had difficulty accessing hospital services, acquiring medications, and making routine medical appointments (7). Loss of employment has led to food and housing insecurity (8). Shanghai's industrial output fell by 61.5% in April compared to a year earlier. Retail sales fell by 48.3% over the same period (9).

Instead of spending billions on testing and quarantine, China should invest in vaccination (10). Data from Shanghai show that with three doses of China's vaccine, including two primary shots and a booster, the incidence of severe symptoms decreases by 90% (11). Yet vaccination rates remain surprisingly low. By May, only 62% of Shanghai residents older than 60 had received two doses of the vaccine, and only 39% had received boosters. The cost of vaccinating all residents over 60 would be much lower than the cost of regular testing (12), while mitigating the social and economic consequences of the zero-COVID strategy.

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REFERENCES AND NOTES

- 1. "Shanghai starts China's biggest COVID-19 lockdown in 2 years," *Associated Press* (2022).
- Shanghai Municipal Health Commission, "Shanghai COVID-19 cases update" (2022); https://wsjkw.sh.gov. cn/yqtb/index.html [in Chinese].
- 3. "Severe symptoms caused by Omicron, how to save the patients?," CCTV (2022); https://tv.cctv.cn/2022/05/13/ VIDEpNpQ943Uq9zoDq3Rul1Q220513.shtml [in Chinese].
- "Shanghai completed 13 polymerase chain reaction (PCR) tests from March 10th to April 16th, testing more than 200 million people total," CCTV (2022); https://cn.chinadaily.com.cn/a/202204/17/ WS625c02baa3101c3ee7ad0db6.html fin Chinese].
- L. Jialin, "COVID-19 polymerase chain reaction PCR test false positive events," *The Economic Observer* (2022); www.eeo.com.cn/2022/0514/534378.shtml [in Chinese].
- 6. A. Stevenson, "For its next zero covid chapter, China turns to mass testing," *The New York Times* (2022).
- M. Guanjun, "During the pandemic, the road to see a doctor for hemodialysis patients in Shanghai," Shanghai Observer (2022); www.jfdaily.com/news/ detail?id=480318 [in Chinese].
- 8. V. Wang, "'I'm very anxious': China's lockdowns leave millions out of work," *The New York Times* (2022).
- E. Zhang, R. Woo, "Shanghai economy hit on all sides in April by COVID lockdown," *Reuters* (2022).
- 10. X. Zhang et al., Lancet **399**, 2011 (2020).
- 11. Shanghai Municipal Health Commission, "COVID situation press conference of Shanghai" (2022); http://wsjkw.sh.gov.cn/xwfb/20220528/82acef0965 d245609311e5448991f8f2.html [in Chinese].
- "Many cities turn to mass testing, how to do that effectively," Xinhua News (2022); www.news.cn/ politics/2022-06/08/c_1128723529.htm [in Chinese].

10.1126/science.add4602



