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Commentary

Mass testing for COVID-19 in Ulaanbaatar, Mongolia: "One door-one test" approach

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Mongolia responded quickly when Asian countries were first hit by COVID-19 in early 2020. On March 10, 2020, the first COVID-19 case, originating from abroad, was confirmed in Mongolia [1]. But no local transmissions were recorded until November 10, 2020. By February 9, 2021, Mongolia had registered a total of 2,120 confirmed COVID-19 cases with the vast majority (60·57%) reported in Ulaanbaatar [2], the nation's capital with a population over 1·5 million.

The Mongolian government placed Ulaanbaatar under lockdown between 11th and 23rd February, 2021 to reduce the spread of COVID-19 and to restrict movement during the national holiday, "Lunar New Year" [3]. Moreover, during the lockdown period, the government initiated a mass testing campaign, the so-called "One door-one test" (ODOT), which utilised PCR assays to test one family member (age>18) from each of the 420,000 households in Ulaanbaatar. It was hoped that these measures would decrease COVID-19 cases by 3,4 fold and thus reopen Ulaanbaatar's economy [3].

However, we believe that the decision to adopt an ODOT measure was not the most appropriate policy response, as it is not evidence-based, and thus it may even have had some unintended negative outcomes.

First, we argue that mass testing only captures a snapshot of COVID-19 at the time of testing and may create a false sense of security [4]. Importantly, on February 9, 2021 in Ulaanbaatar (just before the lockdown) the number of daily confirmed new cases of COVID-19 was 41 with no deaths (rolling 7-day average) [2]. The majority of the sources of infection had been traceable, and all COVID-19 patients had been treated in the hospitals, regardless of their severity classification. On February 24, 2021, after the ODOT which was allocated a budget of 18·4 billion Mongolian tugrik [5] (approximately 6·46 million USD [6]), the Ministry of Health reported that the ODOT had identified a total of 131 cases; of these 59 were new and 72 were close contact cases [7]. This clearly highlights the inefficiency of the ODOT given the circumstances. Furthermore, in contrast to the expected outcomes of the ODOT, new cases of COVID-19 started to increase dramatically immediately after the ODOT (Fig. 1) [2].

Second, while the ODOT may offer a rapid response, requiring fewer resources compared to the type of mass testing (individual) conducted in China and Slovakia [8,9], we would argue that it was designed improperly in Mongolia. For example, the tested individual may not represent his/her whole family members' infection status when household size and composition are not considered. Clearly more careful inclusion criteria should have been applied. A recent study found that the secondary attack rate of COVID-19 in the same household contacts ranges between 4·6% and 49·5%, in different countries. Furthermore, the spouse and older people would be at a greater risk of secondary transmission than other members living in the household [10]. During the ODOT, younger or male household members who are known to be less vulnerable to COVID-19, tended to be tested. This may cause a selection bias leading to distorted prevalence estimates of COVID-19 by missing infected people. Therefore, as the ODOT is likely to yield insufficient and inconclusive data regarding evidence that is required for proper policy making, this is also an ethical issue.

Third, duplication of health services, inefficiencies, health inequalities, and poor allocation of resources are challenges facing the Mongolian health system, which certainly will be exacerbated during and after COVID-19 crisis. The present decision on testing highlights the fact that Mongolia should not squander scarce resources by undertaking "resource-wasting" programs such as mass testing. Resources, efforts, and time should rather be dedicated to other essential actions, especially vaccination programs. For devel-

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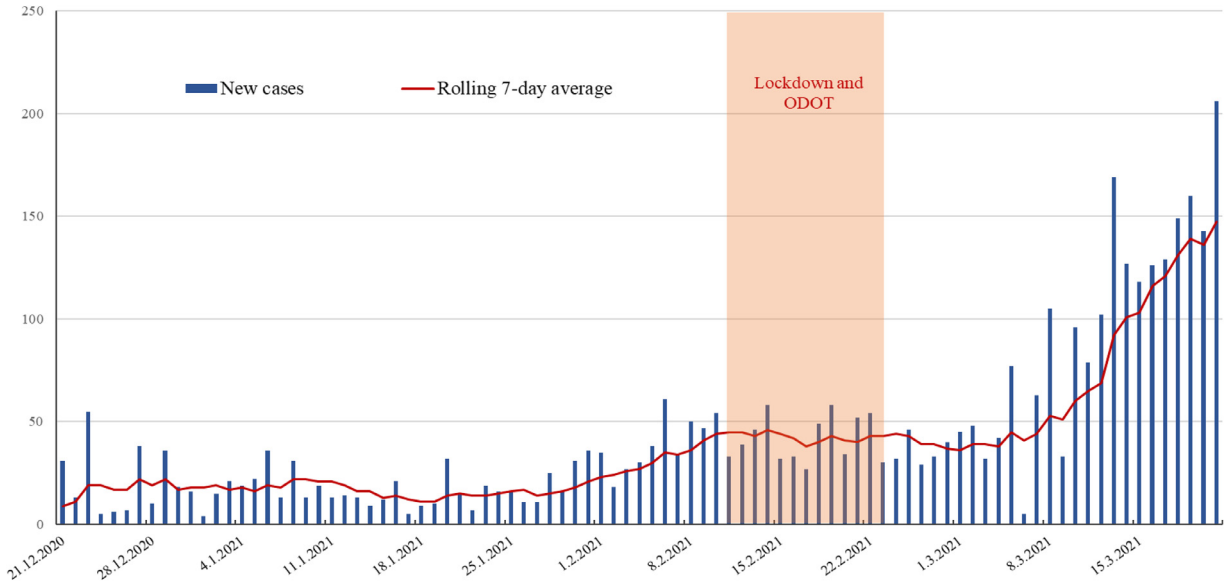

Fig. 1. Daily new confirmed covid-19 cases in Ullanbaatar Mongolia. Data were adapted from the Ministry of Health [2].

oping countries like Mongolia, deciding on priorities and the most effective strategies has long reaching implications for the sustainability not only of the health system but also for the nation's economy and stability.

Fourth, we think that not only are these test predictions unrealistic, but such practices may have dire consequences for delaying test results and contact tracing and creating a shortage of resources prohibiting more effective further actions. The heavy workloads involved in the ODOT may have placed health workers at a greater risk of burnout and COVID-19 infection.

Therefore, we suggest that the Mongolian government should re-evaluate the ODOT approach before embarking on further policy responses to COVID-19. Analysing the cost effectiveness of the measure is necessary. The pandemic and its sequelae present complex, long term challenges which demand more than a knee-jerk political response. Greater transparency, accountability and public health expertise are critical in delivering evidence-based health and social policy to the people of Mongolia.

Declaration of Competing Interest

We declare that we have no conflict of interest.

Author contributions

JD conceived the idea when the government of Mongolia announced the launch of its mass testing campaign, the so-called "One door-one test" in Ulaanbaatar, Mongolia. JD and EB wrote first draft of this commentary. JK participated in a critical revision of the commentary. All authors discussed, revised, and approved the final commentary.

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