

## Assessing national performance in response to COVID-19



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Before the advent of the COVID-19 pandemic, several countries participated in an exercise to assess their preparedness for pandemics through an assessment of their Global Health Security Index (GHSI).<sup>1</sup> The USA and the UK were identified as two countries most prepared. Experiences with COVID-19 have shown that in-depth assessments of outbreak preparedness need to go beyond publicised plans. Prior assessments of countries such as Vietnam (ranked 50th on the GHSI) and New Zealand (35th on the GHSI)<sup>1</sup> are inconsistent with actual performance.<sup>2</sup> In practice, it is better to benchmark countries during a pandemic in ways that allow information on outcomes and performance to be obtained, analysed, reported, and used in real time.

Assessment of the performance of COVID-19 response systems is key to easing lockdowns and opening borders between and within nations. It requires an understanding of public health capacities, government actions, and community behaviours, recognising that people, communities, and nations everywhere are learning to live with COVID-19. Making decisions about border closures or lockdown status without such an assessment gives insufficient attention to the extent to which communities are capable of living with the virus; simply put, actions are taken without some of the essential factors being considered. To try to keep cases of COVID-19 sustained at zero while waiting for a vaccine to become available is a naive option and will result in enormous social and economic harm and isolation for an indefinite period. There are no guarantees that an effective vaccine will be available soon and have high community uptake. The other extreme of accepting uncontrolled transmission leads to excess all-cause mortality and overwhelmed health systems. As people everywhere make sense of the threats posed by COVID-19, they expect decision makers to help them limit both risks to their health and any restrictions on their lifestyles and livelihoods.

Trends in the numbers of COVID-19 cases are being used to judge the performance of national responses to COVID-19. But case numbers are unreliable as indicators of the performance of response systems.<sup>3</sup> Serological investigations suggest that case numbers are a small fraction of the total number of people who have been infected.<sup>4</sup> Additionally, the actual numbers of cases

recorded are dependent on a country's testing strategy and capacity and the extent to which individuals go for testing. Furthermore, case numbers do not reflect the performance of systems for containing clusters or suppressing virus transmission. These systems, and the potential for their performance to change over time, must be factored into any choices made during the COVID-19 response.

Communities want to assess whether the response systems are contributing to the best possible outcomes and expect government decisions to make this happen. The most frequently used outcome measure is the number of COVID-19 deaths. It is hard to conceal fatalities, although methods for counting COVID-19 deaths vary between, and even within, countries. Other outcomes that could be tracked in the future will include long-term COVID-19 sequelae, including pulmonary, cardiac, neurological, and other complications.<sup>5,6</sup> Assessments of national performance must include one or more of these outcome measures obtained consistently over time.

Success in reducing deaths or long-term sequelae requires a well organised and resilient hospital system, including emergency departments, general wards, and intensive care units, that is capable of surging in response to increased patient demand. Such a resilient hospital system calls for effective organisation, well trained staff with adequate personal protective equipment, and access to necessary medications, oxygen supplies, and ventilators. These elements are important contributors to systems performance.

Performance assessments should also take into account hospital and other health-care providers' abilities to maintain clinical activities unrelated to the pandemic. Tagging certain medical and surgical procedures, such as routine vaccination and health screening for cancers and other chronic conditions, as elective is incorrect if their postponement will lead to avoidable morbidity and mortality.<sup>7,8</sup> Some disturbance to routine health services is inevitable given that some of the health-care workforce will be assigned to outbreak management. People may be deterred from using routine health services unless they are confident that effective action is being taken to reduce nosocomial infections.<sup>9</sup> Such challenges can be mitigated through the use of telemedicine and the ring-fencing of selected hospitals for non-COVID-19 procedures.

Efforts to reduce numbers of COVID-19 cases, deaths, and sequelae require organised capacities within communities that support people as they adapt their lifestyles to live with COVID-19 as a constant threat. Four key capacities are needed. First, communities must have the capacity to detect cases early and interrupt transmission chains. This capacity requires a strong community-based public health system that adjusts its functioning according to locally disaggregated data about the whereabouts of the virus and the effectiveness of the response. All response elements must be locally coordinated and the entire response system must have predictable capacity to surge if needed. Virus testing needs to be easily available and free of charge for all. Useful metrics generated by this capacity include the percentage of positive test results and numbers of tests per million population. The implementation of policies as to who may be tested and the turnaround time for testing can also be quantified. Second, communities

need the capacity for isolating individuals with COVID-19 and keeping contacts in quarantine. This function works best if it is implemented rigorously, with people's full cooperation, under public health supervision. Third is the capacity for rapid and thorough tracing of the contacts of cases. Such tracing must also be capable of surging in the face of increased demand. Fourth, public health laws need to be in place, understood, and accepted by the public to reinforce behaviours that are necessary for community wellbeing.<sup>10</sup>

In addition to these capacities within communities, income security is crucial to ensure socioeconomic stability and confidence in a national strategy. Many jobs have been, and will be, lost and companies and businesses may be unable to function efficiently due to sickness, isolation, quarantine, and various non-pharmaceutical community interventions including business closure, working from home, and physical distancing.<sup>11,12</sup> Provision of socioeconomic support is needed to remove possible disincentives and facilitate individual and public compliance with COVID-19 response measures. Furthermore, community confidence and compliance are more likely if there is reassurance that supply chains of food and medicines are resilient and that access is maintained for all.

Protection and support for vulnerable populations are also crucial. Many outbreaks are occurring in socioeconomically disadvantaged groups—eg, residents of nursing homes, migrant workers, refugees, prisoners, and those living and working in dense settings—that are susceptible to infection and severe disease.<sup>13,14</sup> Such individuals are often poorly paid, work in the informal economy, or on daily wages and may not be able to reduce their risk given the conditions under which they work and live. National governments are responsible for ensuring these groups are protected and supported.

Communication and leadership are other important elements of national responses. COVID-19 is a new disease threat and people everywhere expect their leaders to help them make sense of this threat and live with it. They want consistent, honest, and accurate two-way communication. Strategies to communicate are vital and need to use every modality to reach all language and cultural groups and all educational levels of the target community. All leaders need to work together for best results: the virus thrives when decisions are inconsistent or non-transparent. Leadership for the COVID-19

**Panel: Proposed performance indicators to assess national performance in response to COVID-19**

**Ability to detect and break transmission chains**

- Percentage of cases found by contact tracing
- Compliance of the community to governmental health directives
- Testing; percentage positive, capacity per million population, policy, turnaround time

**Ability to minimise deaths and severe complications**

- Deaths per million population
- Ventilator capacity per million population

**Minimise hospital-acquired COVID-19**

- Personal protective equipment availability
- Health-care-associated infections

**Fiscal support for individuals and companies**

- Programmes functioning for those in isolation or quarantine
- Programmes functioning for those threatened by social restrictions

**Maintenance of food and medicine supply chains**

- Demonstrable actions in place

**Protection and support for vulnerable and neglected populations in the community**

- Recent clusters in vulnerable groups
- Demonstrable actions in place

**Maintenance of usual health services**

- Essential services are never reduced
- Non-essential services are restored promptly

response must be intersectoral and nimble, adapting to new evidence as it emerges.

A combination of good leadership and strong public health systems with a fully engaged community can result in well articulated and monitored response capacities. When response systems perform well, they allow for the successful removal of many movement restrictions and the opening of borders between and within countries. An increasing number of societies have modified behaviours and are able to try to function sustainably without lockdowns.<sup>15</sup> People will accept that there will be some COVID-19 cases, and, occasionally, small clusters of cases that can be rapidly controlled. The application of foresight and available evidence relating to transmission means that superspreading events should be rare.

We have devised a checklist of capacities for assessing COVID-19 response systems and capacities (panel). By addressing these seven indicators and quantifying them where possible, we can assess the likelihood of safely removing social restrictions and the opening of borders. Success is the capacity of a country to live with COVID-19. Shutting borders and locking down communities are useful to allow time to develop the response capacity but should not be long-term strategies. The use of criteria such as those outlined here can aid in a local or national self-assessment, especially when deciding whether to restrict movement. These criteria can also help when decisions are made among neighbouring nations about whether to enable people to move between them.

DF is Chair of the Steering Committee of the Global Outbreak Alert and Response Network (GOARN). YTT is Dean of Saw Swee Hock School of Public Health, National University of Singapore. DN is Strategic Director of 4SD Systems Leadership Mentoring, Switzerland, and serves as Special Envoy of the WHO for the COVID-19 response. We declare no other competing interests.

\*Dale Fisher, Yik Ying Teo, David Nabarro

[mdcfda@nus.edu.sg](mailto:mdcfda@nus.edu.sg)

Yong Loo Lin School of Medicine, National University of Singapore, Singapore (DF); Department of Medicine, National University Hospital, Singapore 119228 (DF); Saw Swee Hock School of Public Health, National University of Singapore, Singapore (YTT); and Institute for Global Health Innovation, Imperial College London, London, UK (DN)

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