

Identifying a Capability Framework That Could Mitigate the Coronavirus Disease 2019 Pandemic in a Global Health Community

TO THE EDITOR—It is important for the public health community to establish a surveillance system to actively monitor emerging infectious diseases that constitute a major and evolving global threat. A recent study published in *The Journal of Infectious Diseases* proposed a comprehensive framework to monitor changes in transmission and epidemiology of emerging infectious diseases based on data collected for the Nipah virus [1]. The study demonstrates that a combination of active tracking of transmission and

epidemiological indicators, as well as systematic surveillance, could be applied to other high-risk emerging infectious diseases, such as coronavirus disease 2019 (COVID-19), to mitigate its spread.

One study evaluated the association between primary care interventions and laboratory-confirmed COVID-19 cases in Wuhan, China [2]. The investigators found that after the third period of the epidemic, where cordons sanitaire, traffic restriction, and home confinement were implemented, the rate of daily confirmed cases dropped, together with a reduction of severe and critical cases. Their findings are compatible with a study conducted by Ng et al [3], who examined the first 100 confirmed cases of

COVID-19 in Singapore and found that the government's multipronged surveillance and containment strategy could effectively enhance case ascertainment and pandemic control.

Although containment strategies such as social distancing and traffic restrictions have been demonstrated as effective measures, few studies have examined the potential impact of country-specific health security in primary care on COVID-19 control. Apart from containment, the capacity to cope, COVID-19 testing, and preparedness of countries could similarly exert a substantial influence on severe acute respiratory syndrome coronavirus 2 spread as we previously highlighted [4, 5]. Table 1 shows the existing indexes that

Table 1. Existing Indices that Measure Public Health Capacities and Capabilities^a

Indices	Categories	References
Global Health Security (GHS) index	1). Prevention of the emergence or release of pathogens 2). Early detection and reporting epidemics of potential international concern 3). Rapid response to and mitigation of the spread of an epidemic 4). Sufficient and robust health sector to treat the sick and protect health workers 5). Commitments to improving national capacity, financing plans to address gaps, and adherence to global norms 6). Overall risk environment and country vulnerability to biological threats	[1]
eSPAR	(1) Legislation and financing; (2) IHR coordination and national IHR focal point functions; (3) zoonotic events and the human-animal interface; (4) food safety; (5) laboratory; (6) surveillance; (7) human resources; (8) national health emergency framework; (9) health service provision; (10) risk communication; (11) points of entry; (12) chemical events; and (13) radiation emergencies	[2]
INFORM score	1). Hazard and Exposure: natural; human 2). Vulnerability: socioeconomic; vulnerable groups 3). Lack of Coping Capacity: institutional; infrastructure	[3]
International Health Regulations (IHR) index	1). Prevent 2). Detect 3). Respond 4). Enabling function 5). Operational readiness	[4]
Epidemic Preparedness Index (EPI)	1). Public Health infrastructure 2). Physical infrastructure 3). Institutional capacity 4). Economic resources 5). Public Health communication	[5]
Ready Score	Based on the Joint External Evaluation (JEE) tool with 19 areas 1). Prevent 2). Detect 3). Respond to health threats	[6]
British Red Cross COVID-19 Vulnerability Index	1). Clinical vulnerability 2). Other health/wellbeing needs 3). Economic/financial vulnerability 4). Social vulnerability (including physical/geographical isolation)	[7]

Abbreviations: COVID-19, coronavirus disease 2019; eSPAR, Electronic State Parties Self-Assessment Annual Reporting Tool; INFORM, Index for Risk Management.

^aReferences: [1] Global Health Security Index (<https://www.ghsindex.org/about/>); [2] World Health Organization, e-SPAR State Party annual report (<https://extranet.who.int/e-spar/>); [3] INFORM index for risk management. European commission disaster risk management knowledge center (<https://drmkc.jrc.ec.europa.eu/inform-index/>); [4] World Health Organization State Party self-assessment annual reporting tool; [5] Oppenheim B, Gallivan M, Madhav NK et al. Assessing global preparedness for the next pandemic: development and application of an Epidemic Preparedness Index. *BMJ Global Health* 2014;4:e001157; [6] World Health Organization Joint External Evaluation (JEE) tool. <https://viableopposition.blogspot.com/2020/03/how-prepared-is-world-for-pandemic.html?m=1>. [7] British Red Cross Vulnerability score. (<https://britishredcrossociety.github.io/covid-19-vulnerability/>).

have been published with scores assigned to each individual country. A commonly used example include the Global Health Security (GHS) index jointly devised by the Nuclear Threat Initiative (NTI), the Johns Hopkins Center for Health Security, and The Economist Intelligence Unit [6]. The GHS index consists of indicators of each country's capacities and capabilities to suppress Global Catastrophic Biological Risks (GCBRs), and it prioritizes the health security capacity that is contextualized to the country's healthcare system. Another example includes the e-SPAR (Electronic State Parties Self-Assessment Annual Reporting Tool), which has the potential to improve the capacity of countries in their prevention, detection, assessment, notification, and response to public health risks of global concern [7, 8]. This score consists of 13 International Health Regulations capacities required for detection, assessment, notification, reporting, and response to global incidents of significant public health concern. We believe it is worthwhile to examine whether performance measured using these indices could potentially mitigate the COVID-19 pandemic. Further studies are needed to identify which components of these indices, as proxy measures of public health preparedness and capacities, are most significant in pandemic control.

Notes

Potential conflicts of interest. All authors: No reported conflicts of interest. All authors have submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest.

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