Will COVID-19 generate global preparedness?

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See Articles page 1047

In *The Lancet,* Nirmal Kandel and colleagues[1] report their analysis using an operational readiness index to summarise countries' national performance across 18 indicators of preparedness to prevent, detect, and respond to an outbreak of a novel infectious disease. The authors' analysis shows that only 104 (57%) of 182 countries had the functional capacity to perform crucial activities at national and subnational levels. 32 (18%) countries had low readiness and would require external resources to control an emerging infectious disease event.

Kandel and colleagues' conclusions are similar to those of the Global Health Security Index[2] and previous assessments from WHO.[3] Increased concern about these shortfalls in readiness is not surprising, given that coronavirus disease 2019 (COVID-19) cases have been identified in dozens of countries. A similar pattern of increased awareness about global health security has been observed during previous public health emergencies of international concern.[4] Later in 2020, after the initial anxiety about COVID-19 has waned, we might expect that the calls to strengthen infectious disease preparedness will have gone unheeded and will drop down the list of global priorities. The cycle of panic then forget has become routine.

Several specific actions can mitigate future threats to the health of the global population. First, we need to fully implement the International Health Regulations (IHR) in countries of all income levels. Reports from WHO and the Global Preparedness Monitoring Board have shown that responses to urgent crises have improved under the IHR (2005), but important deficiencies in coverage still exist.[3,4] We must scale up laboratory capacity and other surveillance capabilities, augment the readiness of health systems to care for large numbers of seriously ill patients while safeguarding the health-care workforce, and improve communication and coordination strategies and implementation.[5] Procurement and supply chain management must also be enhanced to ensure adequate stocks of personal protective equipment and essential medications and to enable equitable access to new diagnostics, therapeutics, and vaccines during health emergencies.[6]

Second, we need to accelerate progress towards achieving the priorities and targets of the Sendai Framework for Disaster Risk Reduction,[7] which was adopted by UN member nations in 2015. The Sendai Framework applies an all-hazards approach to increasing international, regional, national, and local resilience to withstand a broad spectrum of disasters, including epidemics, pandemics, and epizootics. Preparedness for emerging infectious diseases requires strengthening health systems and developing response plans that account for the social, environmental, political, and institutional factors that can either support or disrupt emergency management efforts.[8] The Sendai Framework complements the IHR by integrating infrastructure, climate change, and economic considerations into disaster management plans and promoting inclusive policies that protect vulnerable populations during all phases of mitigation, preparedness, response, and recovery.[7]

Third, plans for preventing, detecting, and controlling outbreaks of emerging infectious diseases need to be built on a One Health foundation that emphasises the interconnectedness of humans, animals, and ecosystems.[9] Transdisciplinary, multisectoral strategies are necessary when seeking to solve complex problems that threaten global public health and safety.[10] More specifically in relation to diseases such as COVID-19, One Health focuses on the danger existing at the human–wildlife interface. The ability to detect viruses in livestock and wildlife is a crucial component of early warning systems for human pandemics.[11]

The COVID-19 outbreak is yet another reminder of the necessity of intensified and sustained commitment to global public health preparedness. The world does not need more evidence of the health, social, economic, environmental, and other problems that arise when we fail to invest adequately in global health security. What is required to break this panic-then-forget cycle is to follow through on prioritising, funding, and implementing preparedness interventions.

I declare no competing interests.

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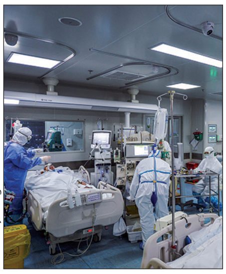
Clinical course and mortality risk of severe COVID-19



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See **Articles** page 1054

Several published reports of early clinical descriptions of coronavirus disease 2019 (COVID-19) have emerged from Hubei province in China, and many more will come. These early reports, typically simple descriptive case series of patients hospitalised with COVID-19 (mostly with pneumonia), provide valuable information on the more severe end of the disease spectrum. We tend to hear more about the most severe cases in the early stages of a new disease, as these are the ones first brought to the public's attention and are associated with deaths. However, it is important to bear in mind that the current best estimate is that about 81% of people with COVID-19 have mild disease[1] and never require hospitalisation. These cases have not yet featured much in published clinical descriptions.

In *The Lancet*, Fei Zhou and colleagues[2] provide further insight into the clinical course and mortality risk for adults with COVID-19 severe enough to require hospitalisation. They report findings from 191 patients with COVID-19 from Wuhan during the first month of the outbreak, and follow them through to discharge (n=137) or death (n=54). The follow-up until discharge or death is a point of difference from other case series to date. Their cohort had many characteristics in common with other reports[3–5]—a median age of 56·0 years (IQR 46·0–67·0), a high percentage (62%) of men, and nearly half (48%) of patients with comorbidities. In-hospital death was associated with, on admission, older age (odds ratio 1·10, 95% CI 1·03–1·17; p=0·0043), a higher Sequential Organ Failure Assessment score (5·65, 2·61–12·23; p<0·0001), and blood d-dimer greater than 1 μg/mL (18·42, 2·64–128·55; p=0·0033), findings known to be associated with severe pneumonia.[6,7] The study also presents early data on changes in clinical and laboratory findings over time, which could help clinicians to identify patients who progress to more severe disease. In-hospital mortality was high (28%), much higher than in other reports that had incomplete follow-up data,[3,5,8] and was very high among the 32 patients requiring invasive mechanical ventilation, of whom 31 (97%) died. This might reflect a higher proportion of patients admitted with severe disease in the early stages of the outbreak. In another report from Wuhan, mortality was 62% among critically ill patients with COVID-19 and 81% among those requiring mechanical ventilation.[9] While the world awaits further information from other locations, including from outside China, the current message is that mortality is high among the minority of people with COVID-19 who get severe disease.

The cohort design of this study provides excellent front-line information about mortality risk. It is essential for readers to understand that this truly is a retrospective cohort design, even if it might appear otherwise at first. Careful consideration of the design is essential to understanding the findings. The authors were able to collect a wealth of information from admission to discharge on many of the earliest known cases of coronavirus in the world. By identifying this large group of patients united by their disease and tracking them to these endpoints, the authors have provided us with insight into risk factors for in-hospital death. Even though their cohort does not include the censored observations of patients admitted during the study timeframe but not discharged by the end timepoint, these results can still be considerably useful for epidemiological description of the disease in terms of person-level risk. By excluding incomplete observations, it is possible that the reported mortality rate is biased to appear larger than it is, as