



How we will reach a safer community

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At the end of last year, the Republic of Korea, China, and Japan responded to concerns about the increase in new coronavirus disease 2019 (COVID-19) patients and the emergence of new variants by strengthening their surveillance and quarantine measures. However, contrary to these concerns, the number of new cases and deaths decreased globally, and some have expressed the opinion that the World Health Organization (WHO) should reevaluate the declaration of a global public health crisis. However, the decision has been made to maintain the crisis status for the time being [1]. Nevertheless, in the first week of January, when the R_t value dropped below 1, the Republic of Korea implemented an exit strategy and has enforced it since January 30 [2]. The use of masks in public health facilities where a large number of people gather is now at individuals' discretion, while their use is mandatory in public transportation. And, it is necessary to transition to a long-term strategy based on the endemicity of COVID-19. In the United States, the BXX. 1.5 variant has become predominant, but it is expected to be resolved by May 11th [3]. Therefore, the search for an exit strategy should consider which measures should be prioritized to prepare for the next pandemic.

Building public trust in the safety and efficacy of currently available COVID-19 vaccines is of the utmost importance. Nationwide vaccination and booster programs have been initiated to curb the ongoing pandemic. During the vaccination campaign over the past 3 years, reports of vaccine adverse events have led to the need for research on the epidemiological relationship between vaccination and serious illnesses. To ensure scientific and objective judgments regarding this issue, the government has entrusted research on the adverse effects of COVID-19 vaccinations to the National Academy of Medicine of Korea. The study by Jeong et al. [4] published in this issue summarizes the methods used to research important adverse events following immunization; the ultimate goal of this research program is to increase the reliability of vaccines and combat vaccine hesitancy among medical professionals and the public.

The second measure that must be prioritized is the improvement of governance by amending laws and regulations related to infectious diseases. After the Middle East respiratory syndrome outbreak in 2015, the government introduced a legal system that classifies reporting and quarantine methods for disease management based on the severity of each disease group. However, the severity of COVID-19 can change depending on vaccination or mutations in the virus. Thus, the government has changed the classification of COVID-19 from a level 1 disease, which requires immediate reporting, isolation, and treatment cost support, to a level 4 disease, which requires self-payment of treatment and surveillance. This adjustment of the severity level has created confusion in its management and procedural problems related to changing legal measures. Therefore, the disease grouping according to management strategies should

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be discarded; instead, diseases should simply be listed in 'Korean alphabetical' reduce the confusion in the law, with lower-level laws such as presidential decrees and Ministry of Health and Welfare regulations governing the definition, diagnosis and treatment, public health measures, reporting methods, and international measures for each disease. An advantage of this approach would be that diseases requiring restrictions of individual freedom and rights would be strictly regulated by higher-level laws under the supervision of the National Assembly. This would ensure the ongoing stability of legal operations. In addition, delegating the details of disease management strategies to lower-level laws would allow more flexible management options depending on the epidemiological situation of each disease.

However, when amending laws and regulations, trends in international infectious disease management reform must be considered. The WHO recently announced a proposed revision of the International Health Regulations (IHR) and is currently seeking opinions [5]. The previous IHR focused on prevention and response in the public health sector based on traffic and trade following the international spread of diseases, whereas the recently proposed revision expands the scope of risks and emphasizes expanding the management of preparedness and social resilience in the healthcare system, as well as international cooperation and responsibilities. The government is also currently negotiating the Pandemic Prevention Treaty [6], which aims to overcome catastrophic infectious diseases through transparently communicating information about disease occurrence, strengthening the binding force of international law, ensuring equity in access to vaccines and treatments, easing the use of intellectual property rights, preparing the healthcare systems of low- and middle-income countries, addressing human rights issues related to discrimination and coercion, and addressing issues related to animals, humans, the environment, and health (One Health).

It is difficult to address pandemic diseases solely with the current legal system for infectious disease prevention and management. In other words, for managing all disaster-prone diseases, a new legal system that includes prevention, response, and resilience is necessary. This new legal system should encompass crisis declaration and mitigation, medical system preparation, education and training, personnel recruitment and retention, production and supply of materials, medical and non-medical measures, research and development, protection of vulnerable groups, and exemptions, among other things [7].

Thirdly, to improve our response to COVID-19, we should focus on what we did well and what we missed due to various difficulties. We must continue to learn from the past, and we will move forward to change the future through Health For

All (epitope of Late LEE Director General of WHO Jong-wook, 2006). The importance of collaboration between a strong public health network and a treatment system centered around private medical institutions was emphasized during the COVID-19 pandemic. Collaborative mechanisms of this type are needed for the efficient use of limited healthcare resources and continued efforts to eradicate diseases.

When nationwide medical insurance for universal health coverage was implemented in 1988, the national organization for managing tuberculosis (TB) was eliminated from health centers as many TB patients sought treatment at private medical institutions, resulting in inaccurate reporting and statistics for almost 10 years. Therefore, a new model of public-private collaboration was developed and implemented, which enabled proper TB management. Thanks to this, the goal of eradicating TB by 2030 is achievable. Therefore, even in the absence of a national TB management system centered around health centers, as we approach the eradication stage, the public health program for disease prevention and contact tracing must never be separated from the treatment program for patients. This approach will also be applicable to the strategy for eradicating acute infectious diseases, such as measles and COVID-19.

In the beginning of the COVID-19 pandemic, public health measures such as isolation and contact tracing were effective in blocking its transmission and reducing the number of patients. However, as local community transmission without epidemiological associations progressed, the severity of the disease decreased, and the vaccine uptake rate increased, infection prevention and management were abandoned altogether. The trade-off between preventing economic stagnation, achieving a high vaccination rate, and maintaining public health policies has been difficult, but well executed [8]. Nonetheless, the Republic of Korea has seen a globally unprecedented number of new cases. Therefore, ongoing efforts are needed to follow the principles of infection prevention and management even in a surge situation, in order to minimize the occurrence of cluster cases patients and collateral damage.

It is now increasingly believed that the COVID-19 pandemic will soon end; therefore, related budgets and programs are gradually decreasing, which raises concerns that programs may be terminated before the disease is eradicated [9]. We need to create alternatives to avoid making these concerns a reality, such as establishing a self-sufficient healthcare system at the district or regional level that can withstand surges, including tracing and quarantine for close contacts of infected patients at the local level, epidemiological investigations of cluster outbreaks, home-based medical care, primary care, the management of high-risk groups

and critically ill patients, comprehensive medical care delivery systems, linkage between patient and public health information, collaboration between public health and private laboratories, government call centers, and social care. A comprehensive payment system, such as bundled payment or capitation, needs to be created to make such a system work, in other word the health insurance payment system needs to be changed. A new model for district health systems should be developed to establish a collaborative system between the public health programs of health centers, metropolitan governments, and the central government and private medical institutions to prevent and treat various diseases. Pilot projects are needed to create this system, taking into account cases of establishing self-sufficient district healthcare systems through cooperation between the public and private sectors, such as the Accountable Care Organization model in the United States and the primary care network in Australia.

Finally, rapid diagnosis, treatment, as well as the scaling-up and roll-out of vaccines, are crucial for preparedness against diseases that pose public health crises. Latecomers to vaccine development have failed to dominate the market. In the future, mRNA vaccines can be used not only for preventing infectious diseases, such as malaria and measles, but also as therapeutic vaccines for chronic diseases; therefore, the market for them will continue to grow. However, although vaccines are a global public good, countries have had to pay significant costs to pharmaceutical companies to obtain additional vaccines beyond their allocated amounts in order to protect their own populations during this pandemic. As a result, low-income countries have failed to obtain enough vaccines to protect their citizens. While Moderna and Pfizer in the United States devoted all their resources to vaccine development and succeeded at “warp” or “light” speed, many countries with insufficient technology, human resources, and production capacity had to rely on imports and global aid, making it difficult to develop alternatives. They will face the same difficulties in the event of a new pandemic (Disease X). The news that the WHO is building regional spoke-hub centers [10] to solve these problems is undoubtedly welcome. Despite the creation of tools such as the COVAX facility, which is one of collaborative initiative between international organizations to respond to COVID-19, access to infectious disease management strategies such as PPE, diagnostics, therapeutics, and vaccines was difficult due to export controls. The importance of research and development cannot be overemphasized. At this point, we must confirm where our country stands in terms of developing and securing strategic resources for the next pandemic and prepare countermeasure. Concrete strategies are being discussed, such as governance reform for inter-

ministerial collaboration and coordination, rapid research and development and scaling-up of vaccine production against circulating variants, the revision of regulations related to approval for emergency use, securing budgets for bio-related research and development and market formation, nurturing and developing related human resources, and improving incentives and entry barriers to promote corporate participation. However, there remains a significant gap in the world market for vaccine and therapeutic development.

Notes

Ethics Approval

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Conflicts of Interest

The author has no conflicts of interest to declare.

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