

Editorial  
Infectious Diseases,  
Microbiology & Parasitology



# Measuring the Unintended Effect of Nonpharmaceutical Intervention

Young June Choe

Department of Pediatrics, Korea University Anam Hospital, Seoul, Korea



► See the article “Effects of Non-Pharmacological Interventions on Respiratory Viruses Other Than SARS-CoV-2: Analysis of Laboratory Surveillance and Literature Review From 2018 to 2021” in volume 37, number 21, e172.

**Received:** May 17, 2022  
**Accepted:** May 17, 2022  
**Published online:** May 19, 2022

**Address for Correspondence:**

**Young June Choe, MD, PhD**

Department of Pediatrics, Korea University  
Anam Hospital, 73 Goryeodae-ro, Seongbuk-  
gu, Seoul 02841, Korea.  
Email: choey@korea.ac.kr

© 2022 The Korean Academy of Medical  
Sciences.

This is an Open Access article distributed  
under the terms of the Creative Commons  
Attribution Non-Commercial License (<https://creativecommons.org/licenses/by-nc/4.0/>)  
which permits unrestricted non-commercial  
use, distribution, and reproduction in any  
medium, provided the original work is properly  
cited.

**ORCID iD**

Young June Choe   
<https://orcid.org/0000-0003-2733-0715>

**Disclosure**

The author has no potential conflicts of  
interest to disclose.

The emergence of coronavirus disease 2019 (COVID-19) pandemic has posed a considerable health burden. Prior to the introduction of vaccines and therapeutics, non-pharmaceutical interventions (NPI) has been a significant appeal in aim to reduce the transmission of SARS-CoV-2 virus. The theory of NPI in mitigating from communicable disease dates back to 1919, when school closure and public gathering bans have shown effectiveness in preventing spread of pandemic influenza.<sup>1</sup> In U.K., a modelling study estimated that there was more than 3 million deaths potentially averted between January and May of 2020 due to COVID-19 following the introduction of NPI in Europe.<sup>2</sup> While there has been substantial reduction in COVID-19 related disease burden, there were unexpected, or more to say, unintended health outcomes that have been likely resulted from social distancing measures.

In this issue of the Journal, Shi et al.<sup>3</sup> discusses on the additive effect of NPI in reduced transmission of respiratory viruses other than SARS-CoV-2. The finding of the study is of interest because this is one of scarce population-based studies to measure the change in epidemiology of multiple respiratory viruses in the midst of COVID-19 pandemic. Although the data were in line with the previous report that showed the additive effect of NPI on reducing transmissible diseases, noteworthy, the difference was found between enveloped and non-enveloped viruses.<sup>4</sup> The continuation of rhinovirus and bocavirus epidemics, in conjunction with NPI measures including hand washing and widespread use of disinfectants, likely have been caused by intrinsic viral properties that are less vulnerable to physical control measures. The finding was not limited to the present study, but have been reported in other places as well.<sup>4</sup> As the NPI has been lifted in many places, the increase of person-to-person contact may then lead to an increase of circulation of respiratory viruses. Since circulation of respiratory viruses had been diminished, but not eliminated, children who are not immune to such exposure may become a node of transmission thus posing outbreak potentials to the community. The surge of respiratory syncytial virus and parainfluenza virus in the late 2021 was an alarming sign that showed the potential immune gap in the childhood population due to less exposures over 18-months period.

Ongoing concerns about the emergence of new SARS-CoV-2 variants continue as there are disproportionate distribution of vaccine coverage across the globe, population, region, and

ages. The recent news of increase in COVID-19 related illnesses in North Korea is of concern.<sup>5</sup> Adequate amounts of vaccine or therapeutics are unlikely to be readily available in these occasions. In the light of need to mitigate from the pandemic, gathering of available evidence with additive effects of NPI may lead to a more informed set of public acceptance. The findings from the study may be considered in forming pandemic plan in the near future.<sup>3</sup>

## REFERENCES

1. Markel H, Lipman HB, Navarro JA, Sloan A, Michalsen JR, Stern AM, et al. Nonpharmaceutical interventions implemented by US cities during the 1918-1919 influenza pandemic. *JAMA* 2007;298(6):644-54.  
[PUBMED](#) | [CROSSREF](#)
2. Flaxman S, Mishra S, Gandy A, Unwin HJT, Mellan TA, Coupland H, et al. Estimating the effects of non-pharmaceutical interventions on COVID-19 in Europe. *Nature* 2020;584(7820):257-61.  
[PUBMED](#) | [CROSSREF](#)
3. Shi JH, Kim NY, Eom SA, Kim MD, Oh SS, Moon BS, et al. Effects of non-pharmacological interventions on respiratory viruses other than SARS-CoV-2: analysis of laboratory surveillance and literature review from 2018 to 2021. *J Korean Med Sci* 2022;37(21):e172.  
[CROSSREF](#)
4. Park S, Michelow IC, Choe YJ. Shifting patterns of respiratory virus activity following social distancing measures for coronavirus disease 2019 in South Korea. *J Infect Dis* 2021;224(11):1900-6.  
[PUBMED](#) | [CROSSREF](#)
5. Devi S. North Korean health at risk due to border closures. *Lancet* 2021;398(10294):13.  
[PUBMED](#) | [CROSSREF](#)