

## Vietnam's response to COVID-19: Prompt and proactive actions

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Keywords: COVID-19, Vietnam, response

As a low-middle income and populous country with 95 million people, Vietnam faces a high risk of a severe COVID-19 outbreak, which has overflowed even the most developed health care systems.<sup>1,2</sup> Despite limited resources, Vietnam has kept the outbreak under control since the first cases were confirmed more than two months ago.

### **Recognizing the outbreak**

COVID-19 officially hit Vietnam on January 23<sup>rd</sup>, and the ongoing outbreak in Vietnam can be temporarily divided into three phases (Fig 1., top panel). The first phase lasted until March 5<sup>th</sup>, characterized by case importation from Asian countries. As COVID-19 exploded globally, Vietnam entered phase two with cases also imported from western countries. On March 23<sup>rd</sup>, the first case without an epidemiological link was reported, suggesting the presence of community spread (phase three).

### **Responses**

Vietnam's responses are generally in line with current practices of other countries, but they were implemented very early, with great emphasis on case identification, source control, and public awareness. As early as January 16<sup>th</sup>, 2020, the Vietnamese government took preemptive actions by issuing guidelines of COVID-19 diagnosis, treatment, and prevention.<sup>3</sup> Of note, monitoring and response plans were outlined for potential scenarios. For each phase of the outbreak, specific interventions were issued and adapted accordingly. Overall, control measures were increased in intensity over time, shifting from voluntary to mandatory, and from epicenter-targeted to widely targeted (See Figure 1 for details).

To minimize case importation, Vietnam deployed border control measures such as temperature screening, visa-waiver/entry halting, 14-day quarantine enforcement, and mandatory health declaration. Health declaration, then, was extended to residents with the launch of mobile app NCOV. Extended contact tracing was conducted – once a case (F0) was identified, contacts were traced up to five generations (F1-F5) and put under different levels of prevention.<sup>4</sup>

The government has kept the public constantly updated with the outbreak progression and responses via accessible official channels, in which personal protective measures and social distancing were especially highlighted. Together with ensuring the supply of daily necessities, production of medical essentials and personal protective equipment (PPE) was hastened since the first phase of the outbreak, with 10,000 test kits and 72,000 facemasks produced daily.<sup>4</sup> Therefore, social distancing, mass masking and other control measures have been embraced and complied by Vietnamese citizens.

### **Interim outcomes and lessons learned**

As of April 7<sup>th</sup>, Vietnam recorded 241 confirmed cases and no fatality.<sup>4</sup> The country has kept the outbreak at a slow growth rate even after reporting 100 cases, with doubling time of more than 7 days, on par with Japan or Singapore (Fig 1, bottom panel).

These positive outcomes result from prompt, proactive actions of the government and collective efforts of the public. Unlike affluent Asian countries with GDP per capita of twentyfold higher, Vietnam could not afford a community-wide testing program. Instead, Vietnam has focused on cost-effective measures. At the center of its active case finding is extensive contact tracing and health declaration for all. In combination with case isolation, mass quarantine, and mass

masking, these measures control infections at source, even asymptomatic cases. It is early recognition of the outbreak, swiftly adaptive actions, production line of medical essentials and PPEs, and the public's cooperation that makes these strategies feasible.

Nevertheless, as the pandemic is evolving rapidly, combating the disease becomes more challenging for Vietnam and the globe.

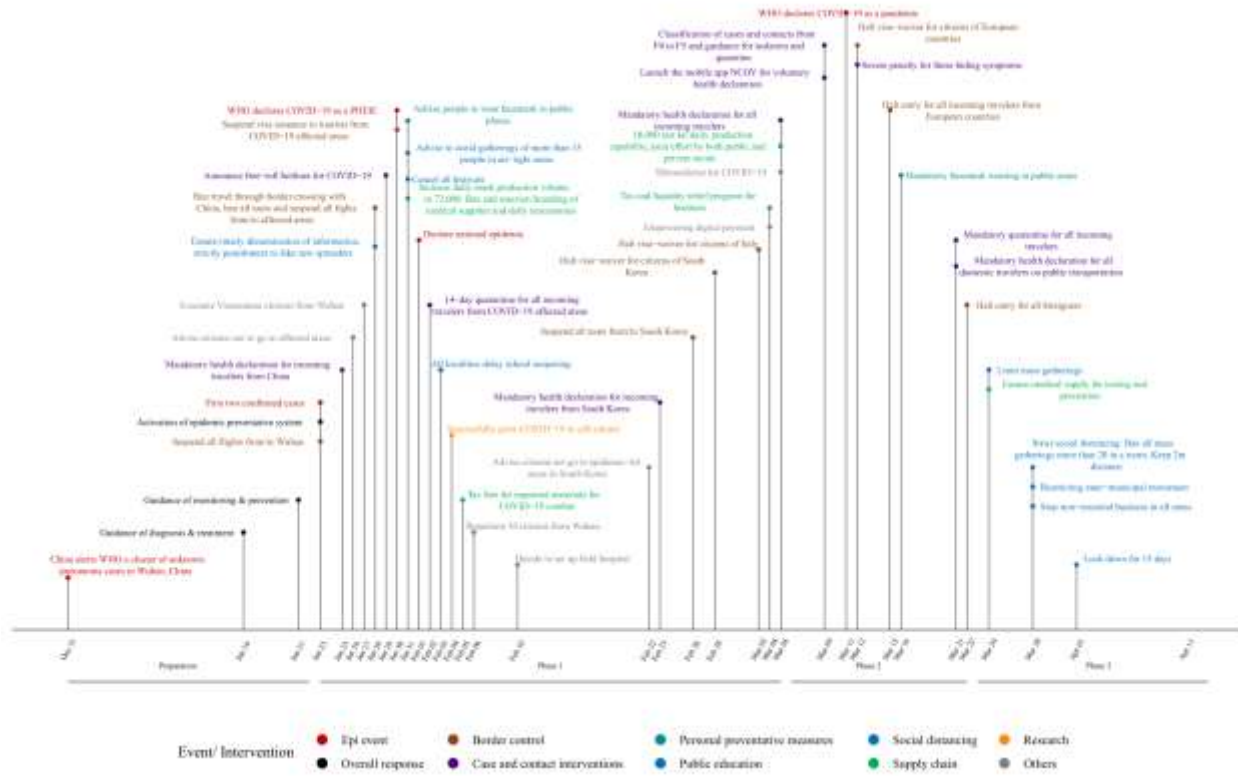
We declare no conflict of interest.

Source of funding: None

Author contributions: LD and TH conceived the idea of study. LD, PD, PDMN, DHNN, TH collected data. LD, TH wrote the manuscript. All authors reviewed and edited the manuscript.

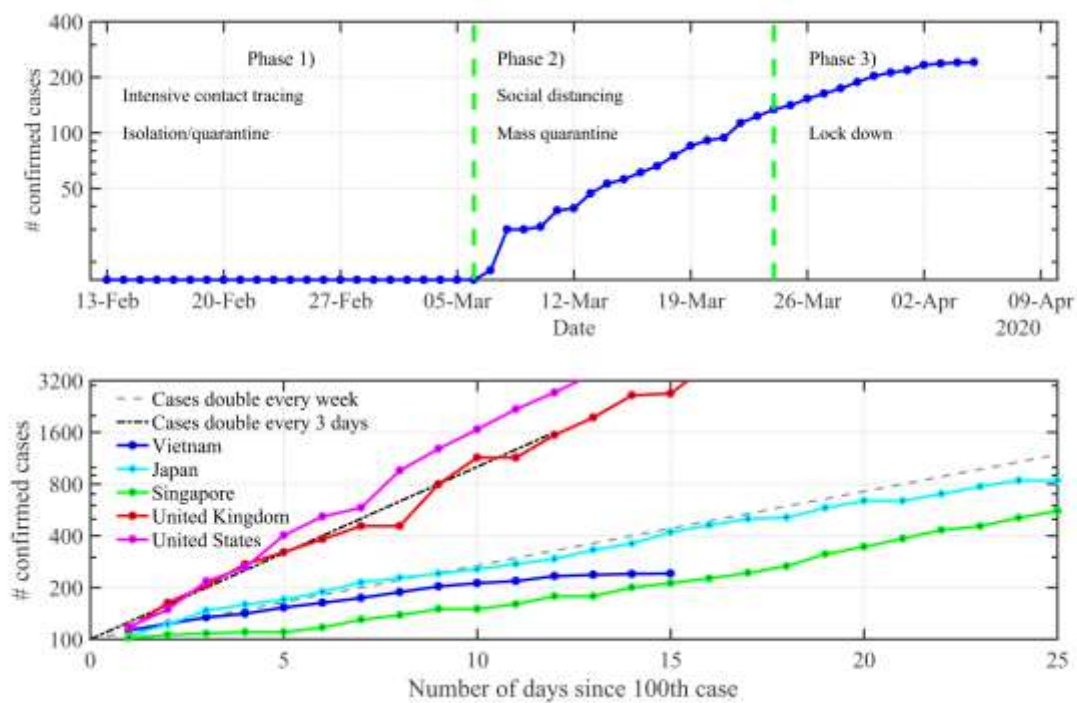
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**Figure 1.** Timeline of outbreak responses in Vietnam



**Figure 2.** The cumulative number of confirmed cases. (Top: Three phases of the outbreak; Bottom: Vietnam in comparison with other countries since 100 cases were reported.)

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## Reference

1. World Health Organization (WHO). WHO Director-General's opening remarks at the media briefing on COVID-19. March 3, 2020. <https://www.who.int/dg/>

speeches/detail/who-director-general-sopening-remarks-at-the-media-briefing-on-covid-19---3-march-2020 (accessed March 11, 2020).

2. Rajgor D, Lee M, Archuleta S, et al. The many estimates of the COVID-19 case fatality rate. *Lancet Infectious Diseases* 2020;
3. Ministry of Health, Vietnam. <https://ncov.moh.gov.vn/>
4. Coronavirus COVID-19 Global Cases by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University.  
<https://gisanddata.maps.arcgis.com/apps/opsdashboard/index.html#/bda7594740fd40299423467b48e9ecf6>

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