

Article Title: The Philippines in the time of COVID-19: Early experiences and challenges of a resource-limited country

Short Title: COVID-19 early experiences and challenges of a resource-limited country

Brief Description: COVID-19 is a threat to the global community, challenging governments, health systems, and institutions to effectively respond to it. Low- and middle-income countries with poor health systems are especially vulnerable. We describe the Philippines' experiences and challenges in implementing public health best practices in this paper.

Keywords: coronavirus, COVID-19, emerging infectious diseases, global health, public health, resource-limited settings

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A Novel Coronavirus Disease

The novel coronavirus disease 2019 (COVID-19, caused by SARS-CoV-2) has spread globally since its first report in Wuhan, China on December 31, 2019. On January 30, the Philippines reported its first two imported cases of COVID-19 in a couple from Wuhan. One of them died on February 1st, becoming the first COVID-19 death outside China. After a third confirmed case from Wuhan was reported, no additional cases were found among the contacts of these cases and no other cases emerged for the next four weeks (1).

The Philippine Health System and the Threat of Public Health Emergencies

The Philippines is a low- and middle-income archipelagic country (LMIC) located in Southeast Asia with a population of more than 100 million people. The country has a dual and decentralized health system composed of public and private sectors with local government units being responsible for finance and operations. Despite improvements in the past decade, the Philippines continues to face public health challenges because of its resource and capacity limitations. First, the Philippines only has 1 hospital bed and 1.3 physicians per 1,000 people, with only about 1,600 critical care beds nationwide (2). These available resources are concentrated in urban areas, with rural areas having only one physician for a population as large as 20,000 people. Second, we have a primary care system of health centers and community health workers in cities, provinces, and municipalities, but they are generally ill-equipped and poorly resourced with limited surge capacity. This is evidenced by a lack of capability for laboratory testing, limited number of

equipment and medical supplies, and lack of personal protective equipment for health workers in both primary care units and hospitals. Third, we have disease surveillance capacity, but this is also uneven across regions and provinces in the country. Fourth, we have disaster preparedness plans at the level of local government that can be mobilized. However, disaster response is better geared for typhoons and floods, rather than fighting epidemics. Hence, our limited resources and capacity make it difficult to adequately respond to public health emergencies, such as COVID-19. As a result, triage systems and algorithms are being implemented in hospitals to prioritize patients who need testing and treatment the most. This system further propagates health inequities with higher chances of treatment and survival for urban patients who are able to access quality healthcare.

Response to COVID-19

Travel restrictions and community interventions

Drawing from experiences of previous pandemics, the Philippine government conducted contact tracing and imposed a travel ban covering foreigners from China, Hong Kong and Macau after reports of the first few cases and deaths due to COVID-19. In the succeeding weeks, it issued another travel ban covering foreigners from South Korea and Taiwan (3). However, these bans were only briefly successful as the number of confirmed cases increased in the weeks that followed (1). While the bans prevented potentially infected people from spreading the disease in the Philippines, travelers from other countries where the disease was already spreading but not subject to the travel bans

were not tested. No other interventions were done until early community transmission was reported on March 6 and after the WHO declared COVID-19 as a pandemic on March 11.

The Philippine government responded to both developments by declaring a 'community quarantine' for Metro Manila beginning March 15 until April 14, and was made even more stringent by extending the quarantine to the whole island of Luzon. This quarantine consisted of the following measures: social distancing; suspension of classes; closure of sea, air, and land travel; establishment of checkpoints for temperature screening; temporary closure of non-essential business establishments; encouragement of work-from-home arrangements; and prohibition of mass gatherings and non-essential public events (4). The declaration was met with panic: ports, expressways, and airports were filled with people attempting to leave Metro Manila; shops posted 'out-of-stock' signages as people hoarded consumer goods and hygiene products; online resellers took advantage of the situation by stockpiling health products and reselling at exorbitant prices (e.g., USD 20 for one N95 mask that normally costs only USD 5). The government responded to these reactions by implementing an 'enhanced community quarantine' in Metro Manila. The enhanced community quarantine consisted of: strict home quarantine in all households; suspension of all forms of public transportation; regulation of the provision for food and essential health services; and implementation of a heightened presence of uniformed personnel enforcing quarantine procedures (4). In addition, curfews were implemented from 8:00 PM to 5:00 AM. According to disease control experts, these community-wide interventions are difficult to implement owing to its scale (5). However difficult, they are necessary to 'flatten the curve' so health systems are not

overwhelmed. This is especially important in a country with: limitations on and poor distribution of resource and capacity; highly populated urban areas; a health system undergoing changes to provide equitable access to quality and affordable health care services for all Filipinos under the newly enacted Universal Health Care Law.

Risk communication

National risk communication plans are vital during public health emergencies. The Philippine government notified the public about the disease, community quarantine guidelines, and other necessary precautions. However, misinformation and conspiracy theories about COVID-19 are still challenges in a population that spends more than 10 hours a day in the Internet. Thus, these spread quickly and become increasingly difficult to correct. Plant extracts, and even the common mouthwash, have been touted to cure the disease. Similarly, conspiracy and racist theories have been circulating, including COVID-19 being a biological weapon that escaped a laboratory. Efforts to limit the spread of misinformation mirrors the dilemma on whether public health imperative or individual human rights should take precedence in times like these (5).

Testing

Testing is another critical component in control efforts, but is done on a small scale in the Philippines. As of March 19, fewer than 1,200 individuals have been tested (1), with only the Research Institute for Tropical Medicine (RITM) accommodating tests for the disease and assisting sub-national reference laboratories to enable them to perform tests. Test

kits are few, with only about 4,500 kits from the WHO. However, the Philippines is expecting a greater capacity in testing after donations from other countries and local development of affordable kits supported by the government (USD 26 vs. USD 164 of internationally available kits) (6).

Conclusions

As a limited-resource country during a progressing pandemic, we are applying recommended interventions including travel restrictions, community quarantine, risk communication, and testing despite limitations in resource and capacity. Our country's approach has been similar to that of South Korea and Singapore – gradual control through effective use of public health best practices (7). We have a fairly functional system for quarantine and a disease surveillance system that is able to do contact tracing. But unlike South Korea, our laboratory capacity is limited and we are unable to deploy extensive laboratory testing to find infected cases. Unlike Singapore, our defenses at the primary level health are poorly organized and resourced, so that patients go straight to hospitals where overloading easily occurs. And we have limited number of critical care beds in the country to care for patients who need ventilators for acute respiratory distress caused by viral pneumonia. But we have a government that is willing to listen to advice from the scientists and so have implemented community quarantine as a way of slowing down transmission and 'flattening the epidemic curve'. The next few weeks should tell how effective these efforts to control COVID-19 will be.

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