

## Developing a Social Vaccine: Community Mitigation Interventions for Different Scenarios

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### Executive Summary

The objective of this paper is to determine the interventions needed at each interval or stage of the pandemic<sup>1 2 3</sup> and the triggers for the scaling up of the interventions. A rapid reviews of journal articles and gray literature was done to assess the current state of the pandemic in the Philippines, and provide recommendations which use a whole-of-society, whole-of-government approach to address possible scenarios.

Table 1. Summary of Recommendations

| Optimistic Time-based Scenario   | Pessimistic Time-based Scenario  | Geographic-based Scenario  |
|--|--|--|
| <ol style="list-style-type: none"> <li><b>Lift Proclamation 929 but maintain sanitation protocols, and social distancing of high-risk population groups.</b> Release enhanced community quarantine gradually, to prevent a sudden surge of cases as interaction among the population is reinstated (eg. re-opening of schools to provinces with no reported cases). High-risk population groups (older populations, and those with comorbidities) should be protected from potential exposure through continued quarantine. Large gatherings should still strictly be disallowed, and other social distancing measures.</li> <li><b>Continue close monitoring of cases with preparation for another ECQ.</b> During the gradual release of the enhanced community quarantine, monitoring of cases and preparation for another community quarantine must be done. This is so if the number of critical cases approaches an increase beyond capacity (higher than 90% occupancy of critical care beds available for COVID-19 patients requiring ventilatory support).</li> <li><b>Aggressively and rapidly scale up testing capability followed by isolation, contact-tracing, and quarantine to keep Rt low.</b> Improved capability keeps the curve flat while a vaccine is being developed.</li> <li><b>Ensure social safety nets for the labor sector.</b> Workers, the unemployed, and businesses should be aided by the government and must be granted economic relief.</li> </ol> | <ol style="list-style-type: none"> <li><b>Continue Proclamation 929 implementation with monthly critical cases monitoring.</b> Provide adequate support to the healthcare system to handle an increasing number of cases. Increase the number of COVID-19 facilities if needed. If healthcare resources are already limited, more stringent prioritization of healthcare may have to be done.</li> <li><b>Same as Recommendation No. 3 and 4.</b> Set up mass quarantine spaces dedicated separately for suspected cases, and for potentially exposed contacts, who do not require hospitalization if cases continue to rise.</li> </ol> | <ol style="list-style-type: none"> <li><b>Expand the provisions of Proclamation 929 but only to affected provinces.</b> Avoid blanket coverage of entire regions or islands.</li> <li><b>Same as Recommendation No. 3 and 4</b></li> </ol> |

<sup>1</sup> Centers for Disease Control and Prevention. U . S. Government COVID - 19 Response Plan. March 13, 2020.

<sup>2</sup> Ferguson, Neil M., Daniel Laydon, Gemma Nedjati-Gilani, Natsuko Imai, Kylie Ainslie, Marc Baguelin, Sangeeta Bhatia et al. "Impact of non-pharmaceutical interventions (NPIs) to reduce COVID-19 mortality and healthcare demand." *Imperial.Ac.Uk* (2020).<https://doi.org/10.25561/77482>

<sup>3</sup> US Department of Health and Human Services. "Pandemic influenza plan: 2017 Update." URL <https://www.cdc.gov/flu/pandemic-resources/pdf/pan-flu-report-2017v2.pdf> (2017).

## Background

The current Philippine policies on COVID-19 were triggered by the declaration of a State of Public Health Emergency after local transmission of COVID-19 was confirmed. By virtue of Proclamation 929 s. 2020, a Luzon-wide enhanced community quarantine (ECQ) was put in place from March 17 to April 13, 2020<sup>4</sup>. 'Shelter in place' protocols limit movement of the general population only for accessing basic essential services. Schools in all levels and mass public transport are suspended. Land, air, and sea travel are restricted, and mass gatherings prohibited. As in other countries with local transmission like Peru and France, uniformed personnel from local police and armed forces are also deployed for stricter enforcement and ensured compliance.

## Results

The Philippines is under Alert Level 4, Sublevel 2 of the pandemic, as triggered by report of local transmission. This implies the supposed immediate and early collaboration with LGUs for the expansion of inter-agency taskforce membership to include other instrumentalities of the government<sup>5</sup>. *Selective* contact tracing is done to *conserve* resources, focusing only on those evident close contacts, running the risk of allowing unidentified positive cases to roam free and untowardly infect others. Testing and management should thus prioritize vulnerable and high-risk groups along with close monitoring of disease trends. Strict enforcement of non-pharmaceutical interventions with the help of law enforcement agencies and other uniformed personnel, as well as implementation of clear mitigation guidelines—or in this case, suppression guidelines, should be operationalized. Back-up systems to address surge capacity should also be ensured, which did not seem to be quite evident at the onset. A sustained level of public awareness should also prevail to minimize fear, reduce anxiety and unrest, through effective health communication and information dissemination of vetted facts and figures. Finally, sustained inter-agency, multi-level, whole-of-society coordination and response should become the norm, with a culture of solidarity and collaboration, to ensure success.

Non-pharmaceutical interventions (NPIs) such as those above intended to reduce transmission by reducing contact among the population, eventually decreasing  $R_0$  or the average number of secondary infections each case generates (reproduction number). Current  $R_0$  estimates for COVID-19 vary<sup>6,7</sup> but are believed to range from 2 to 3. For every 1 infected case, 2-3 persons can be infected, resulting in an exponential growth of cases. The DOH, along with the WHO, estimates 70,000 to 75,000 Filipinos infected in the next three months. The main challenge is that NPIs need to be maintained until vaccines become available, which are estimated to take around 12-18 months with no guarantee of high efficacy. The effectiveness of any NPI alone is limited, but when combined, can have a substantial impact on transmission. Mitigation strategies aim to slow the spread by reducing  $R_0$ , but not below 1. Thus, suppression strategies such as the ECQ, work and class suspension, and restricted travel are currently in place to impose a population-wide social distancing and hopefully reduce  $R_0$  to *below* 1.

The Philippines is already at the highest alert level, yet the disease can still rapidly spread and overburden the health care system. The following scenarios, as tabulated below, summarize triggers and policy recommendations, made with the assumption that the Philippine healthcare system has yet to become resilient<sup>8</sup> and adapted to the current situation as it evolves. Moreover, a key indicator is based on the number of ICU beds per 100,000 population<sup>9</sup> that the DOH needs to determine. Measurement of this threshold level of ICU beds should be done at least 2 weeks after the implementation of Proclamation 929 s. 2020 because of the incubation period. On the next page are recommendations for different scenarios.

## Conclusion

Resilience is best achieved through a multi-sectoral approach, ensuring that safety nets are available not just for the health system but for the entire population, preserving society in times of crises. The goal is to make a robust system which avoids severe loss of life, social disruption, and breakdown in the most basic services, while constantly learning and evolving to build better, more able networks for timely and appropriate action in the future.

<sup>4</sup> Office of the President of the Philippines. Proclamation 929 s. 2020. March 16, 2020

<sup>5</sup> Department of Health. DOH Administrative Order 2008-0024 - Adoption and Institutionalization of an Integrated Code Alert System

<sup>6</sup> Ferguson, Neil M., Daniel Laydon, Gemma Nedjati-Gilani, Natsuko Imai, Kylie Ainslie, Marc Baguelin, Sangeeta Bhatia et al. "Impact of non-pharmaceutical interventions (NPIs) to reduce COVID-19 mortality and healthcare demand." *Imperial.Ac.Uk* (2020). <https://doi.org/10.25561/77482>

<sup>7</sup> Heymann, David L., and Nahoko Shindo. "COVID-19: what is next for public health?." *The Lancet* 395, no. 10224 (2020): 542-545.

<sup>8</sup> Kruk, Margaret E., Michael Myers, S. Tornorlah Varpilah, and Bernice T. Dahn. "What is a resilient health system? Lessons from Ebola." *The Lancet* 385, no. 9980 (2015): 1910-1912.

<sup>9</sup> Li, Ruoran, Caitlin Rivers, Qi Tan, Megan B. Murray, Eric Toner, and Marc Lipsitch. "The demand for inpatient and ICU beds for COVID-19 in the US: lessons from Chinese cities." *medRxiv* (2020). <https://doi.org/10.1101/2020.03.09.20033241>

## Recommendations

Table 2. Scenarios, Triggers, Responses, and Indicators for Luzon (Area covered by Proclamation 929 s.2020)

| Scenarios          | Time-Based (Luzon Only)  |   |
|--------------------|--|---|
|                    | Optimistic <sup>10</sup>   | Pessimistic <sup>11</sup>   |
| Health Care System | <ul style="list-style-type: none"> <li>Utilize Barangay Health Centers, Barangay Health Stations, and private <b>Primary Care facilities</b> as gatekeepers to avoid overwhelming higher-level facilities and to normalize primary care seeking behavior.*<sup>12</sup></li> <li>Maintain a <b>realtime tracker</b> for supply needs of hospitals, bed capacity, ICU capacity, number of healthcare workers. In addition to this, an <b>online marketplace</b> needs to be established where medical equipment suppliers can transact with hospitals will speed up procurement.</li> </ul>   |   |
|                    | <ul style="list-style-type: none"> <li>Ensure COVID hospitals and testing <b>facilities are dramatically increased. Best practices in contact tracing</b> identified and used to improve current practice.</li> </ul>  | <ul style="list-style-type: none"> <li>Increase and <b>expand testing and contact tracing</b> (facilitated through GPS data on mobile phone). Case notification via SMS following expanded testing.*</li> <li>Identify other prospective <b>COVID-19 hospitals</b> based on location and capacity, and provide appropriate equipment and augment workforce.*</li> <li>Assess the feasibility of creating <b>Barangay Quarantine Centers</b> for PUIs who are asymptomatic or show mild symptoms to decongest hospitals.*</li> </ul> |
| Social Protection  | <ul style="list-style-type: none"> <li>National government to issue <b>guidelines for special fund on health emergencies</b></li> <li><b>LGUs to provide transportation for workers in essential services other than health</b> without the capacity to do so (i.e. food services, agriculture, fishing, husbandry, telecommunications)</li> <li>Application of <b>ethical principles and codes to guide community containment practice</b> to protect population health without infringing on personal liberty and self-determination</li> <li>LGUs to <b>assign staff</b> (high risk, no income groups such as senior citizens) <b>for monitoring families' status</b> (15-20 families monitored per week) per BHS/BHC catchment area regarding health status and access to essential commodities</li> </ul> |   |
|                    | <ul style="list-style-type: none"> <li>LGUs to maintain <b>food banks and ensure supply of sanitation materials</b> that can be distributed per family</li> <li>LGUs to <b>employ staff</b> (high risk, no income groups such as senior citizens) <b>for monitoring families' status</b></li> </ul>  | <ul style="list-style-type: none"> <li>National government to <b>issue guidelines on which funds can be disbursed</b>, aside from health budget and DRR funds, <b>especially for LGUs</b> with more limited resources given previous disaster response*</li> <li>LGUs to <b>reorient non-working staff to monitor status of families*</b></li> </ul>  |
| Economy            | <ul style="list-style-type: none"> <li><b>Match donations and aid to supply deficit</b> in hospital equipment, essential goods*</li> <li>Identify manufacturing <b>industries who can shift to producing healthcare equipments*</b></li> <li>NEDA and DOF to <b>assess the impact on the economy</b> with a 1-year and 2-year time frame*</li> </ul>   |   |
|                    | <ul style="list-style-type: none"> <li>Private companies and government agencies with high risk workers are advised to <b>work from home.</b></li> </ul>   | <ul style="list-style-type: none"> <li>Private companies in essential services but can <b>work from home</b> should support their workers by <b>equipping them with the necessary tools (i.e. computers) to remain operational; internet connectivity should be subsidized or reimbursed to remain operational.*</b></li> <li>Allow commercial passenger airlines, buses, and ferries to <b>convert operations for the transport of essential cargo.*</b></li> </ul>  |
| Civil society      | <ul style="list-style-type: none"> <li>Government agencies to <b>facilitate portal for civil societies who are willing to augment</b> manpower and resources (i.e., research, logistics, drafting issuances). Likewise, the portal can also be used to raise concerns.*</li> </ul>   |   |

<sup>10</sup> Daily number of critical cases showing decreasing trend after one month of Proclamation 929 implementation, and daily number of deaths are at a decreasing trend.

<sup>11</sup> Daily number of critical cases showing increasing trend beyond healthcare system capacity within one month or less after Proclamation 929 implementation, and the daily number of deaths are at an increasing trend.

<sup>12</sup> Recommendations with an asterisk (\*) are also applicable to provinces outside Luzon if local transmission has been confirmed. An additional geographic-based recommendation for economy is to encourage governors and mayors to free up and augment fiscal space, to reduce negative impact on the economy and increase social protection.