

Is ECQ Working? A COVID-19 Monitoring and Evaluation Guide for Government Response

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Executive Summary

Given the policy question, "How can we know if the government interventions are working?", this paper aims to provide a guide on how the enhanced community quarantine can be assessed. To answer this, a scoping review for monitoring and evaluation of outbreak interventions was done.

Recommendations

- **Determine the timing and duration for switching the R11 interventions 'on' and 'off'.** Use the number of CCU beds per 100,000 population as set points.
- **Identify and measure the components of the actual reproductive ratio (R) as it responds to the outbreak.** This includes:
 - Number of days between the onset of symptoms and confirmation (7-day moving average)
 - % practicing specific non-pharmaceutical intervention behaviors (e.g., hand hygiene, cough etiquette, etc.)
 - % time spent inside the house (effectiveness of home quarantine)

Introduction & Methods

When the pandemic was announced, countries have undertaken strict control measures such as shelter-in-place, with businesses closed and travel limited by cordon-sanitaires¹. Last March 18, 2020, the "enhanced community quarantine" on the whole of Luzon was enforced. This strictly outlines a shelter-in-place except or procuring or producing essential services and its enforcement². For transparency and accountability, this paper seeks to propose a set of indicators that can be used to evaluate the effectiveness of the Philippine's community quarantine efforts by (1) studying and comparing the impacts of the measures taken by other countries and (2) studying possible methods to measure the effects of the implemented interventions. A scoping review was done to achieve this.

Results & Discussion

Based on a review of literature (Appendix 1), we were able to identify predictive and evaluative indicators, extracting them across various case studies. These indicators will be used to propose the framework for an evaluation study. Below is the **proposed evaluation study**:

Study Design. The evaluation should follow a pre-post ecological design.

Methodology. Indicators used here are from the previous case studies. The frequency of assessment per indicator is suggested to be daily or weekly. The 7-day moving averages should also be explored to eliminate the noise in the data. It is further advised that a comprehensive report be done monthly in a 3-month duration. Figure 1 presents the conceptual framework and Table 1 lists the definitions for select indicators.

¹ Kaplana, Juliana. "A third of the global population is on coronavirus lockdown — here's our constantly updated list of countries and restrictions." *Business Insider*, March, 2020. Accessed March 2020. <https://www.businessinsider.com/countries-on-lockdown-coronavirus-italy-2020-3>.

² Rappler.com. "GUIDELINES: Luzon 'enhanced community quarantine'." Rappler, March 16, 2020. Accessed March 2020. <https://www.rappler.com/newsbreak/iq/254783-full-text-guidelines-luzon-enhanced-community-quarantine>

Limitations. A comprehensive data collection tool must be developed to be able to use this. Data sharing should be initiated across all stakeholders (e.g., LGUs, testing facilities, providers, hospitals, and government departments). Furthermore, capacity-building for mass testing and contact tracing must also be done.

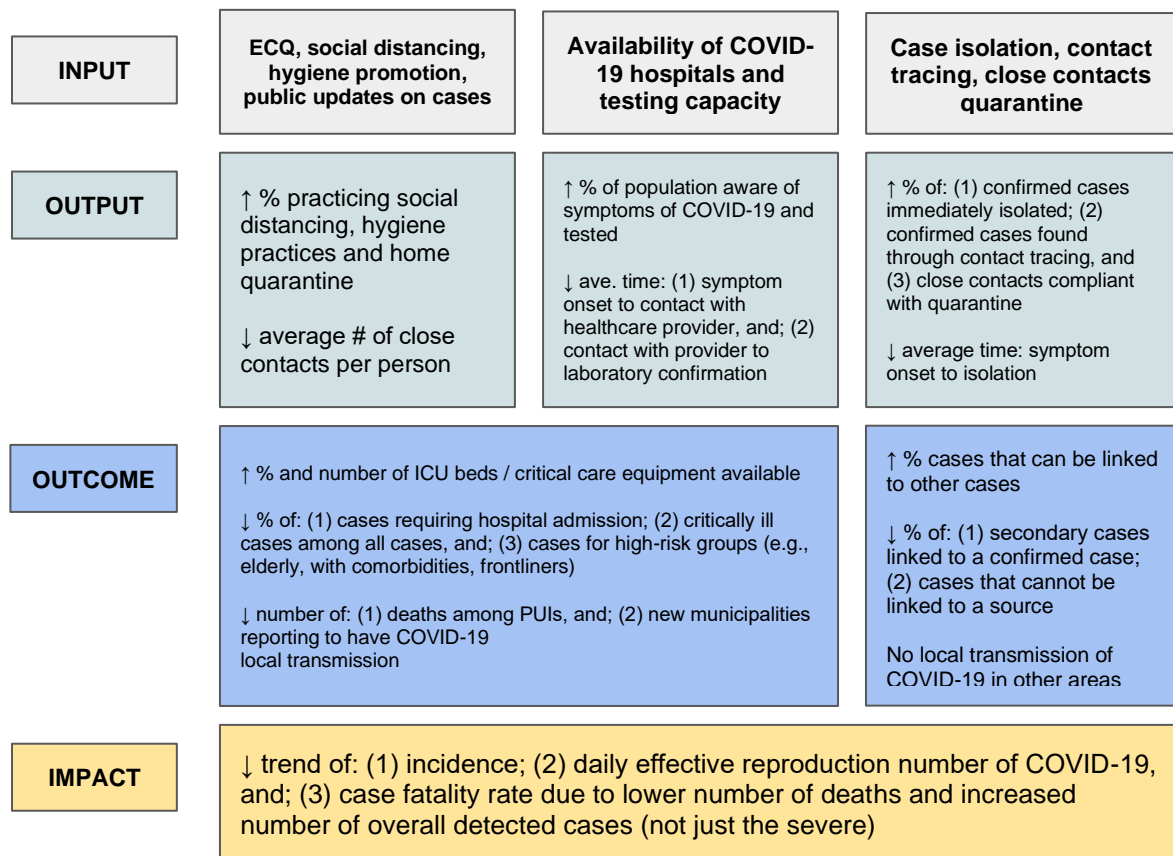


Figure 1. Conceptual Framework

Table 1. Definitions for Select Indicators

Indicators	Description of the data to be collected
Impact Indicators	
Decreasing incidence and case-fatality rate over time (overall and per high-risk group)	Number of confirmed COVID-19 cases per day, visualized over time, and; number of deaths among confirmed cases over closed cases
Decreasing daily effective reproduction number of COVID-19 and other diseases with similar transmission patterns	Average number of secondary cases produced by a typical case in that particular population where $R = K^2(L \times D) + K(L + D) + 1$, where L is the average latent period, D the average latent infectious period, K the logarithmic growth rate of the case counts, t denote the number of days since the start of the outbreak, $Y(t)$ the number of cases
Outcome Indicators	
Decreased proportion of critically-ill and cases requiring hospital admission	Number of critically ill patients and cases needing hospital admission over the total number of identified cases (including mild ones)
Decreased proportion of cases among high-risk groups (e.g., elderly, with comorbidities, frontliners)	Number of cases from a high risk group per total number of cases
Increased number and proportion of ICU beds / critical care equipment available for COVID-19 patients	Number of available resources ready for utilization in all facilities handling COVID-19 patients over total resources
Increased proportion of cases that can be linked to other cases OR decreased proportion of unlinked cases	Number of cases with link to exposure divided by all confirmed cases OR Number of cases that cannot be linked to exposure divided by all confirmed cases

Output Indicators	
Knowledge, Attitude and Practices (KAP)	This is a KAP survey that must be implemented pre- and post-intervention: (1) % population who practice home quarantine, social distancing, handwashing, and cough etiquette; (2) average number of close contacts per person, and; (3) level of awareness of COVID-19 symptoms and when to contact health provider.
Decreased average time from contact with provider to laboratory confirmation	Average duration between testing and confirmation of results in a given day across all facilities.
Decreased 7-day moving average time from symptom onset to isolation/ quarantine	For each 7-day window of onset of symptoms, calculate the average time from symptom onset to isolation / quarantine
Higher proportion of confirmed cases found through contact tracing	Number of confirmed cases found through contact tracing divided by total number of cases.

Recommendations

Policy

1. **Assess the implementation of “enhanced community quarantine” based on the number of critical care unit beds per 100,000 population occupied by COVID-19 patients.** This could serve as a trigger on when enhanced community quarantine should be implemented or lifted.
2. **Assess the clinical and operational effectiveness all the interventions implemented in the duration of the pandemic at regular intervals,** in order to determine the appropriate timing to release COVID 19 suppression measures.
3. **Identify, measure, and reduce the components of actual reproductive ratio (R).** These are:
 - a. Duration of infectiousness or **D** - Number of days between the onset of symptoms and confirmation (7-day moving average);
 - b. Transmission rate or **β** - % practicing specific non-pharmaceutical intervention behaviors (e.g., hand hygiene, cough etiquette, etc.), and;
 - c. Contact rate or **γ** - % time spent inside the house (effectiveness of home quarantine).

Action

1. **Collect data to be able to assess the interventions.** A list of possible indicators and methodology have been provided.
2. **Provide funding resources** needed in the facilities (e.g., PPEs, masks, testing kits, etc.), and designated resources solely for evaluation and monitoring of the indicators

Research

1. **Assess public response (KAP), community acceptance of and resistance** to the different interventions.
2. **Measure the magnitude of the social, economic, and psychological impacts** of the government’s pandemic response.
3. **Do an economic evaluation** of the interventions in Proclamation No. 929, amended by the recommendations of IATF Resolution No. 13, by incorporating new tools and methods in the analysis of surveillance data (e.g., using secondary case count ratio, secondary case count difference, and number needed to quarantine as outcomes then calculating the economic costs of the package of intervention).

Conclusion

Every public policy must be subjected to monitoring and evaluation to protect the public's interest. To do this, the methodology presented in this paper can serve as a baseline for upholding transparency and accountability of government responses.