

**Forecast Report No. 5**  
**(April 29, 2020)**

**COVID-19 FORECASTS IN THE PHILIPPINES: Sub-National Models for NCR  
and other Selected Areas**

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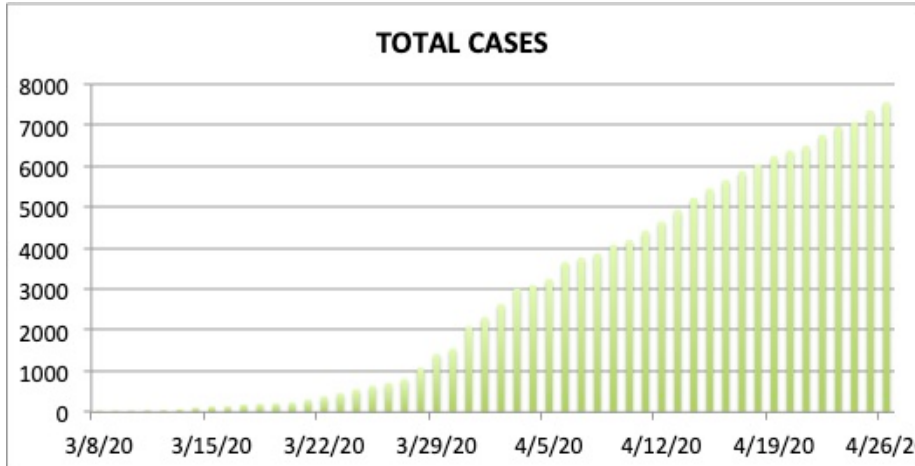
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The next several weeks are full of uncertainty as we attempt to restore normalcy in our lives. Based on data obtained from the Department of Health (DOH), this report aims to provide insights on the implications of the decisions that we are going to make and the measures that could prove useful in our collective effort to overcome the challenges brought by the pandemic.

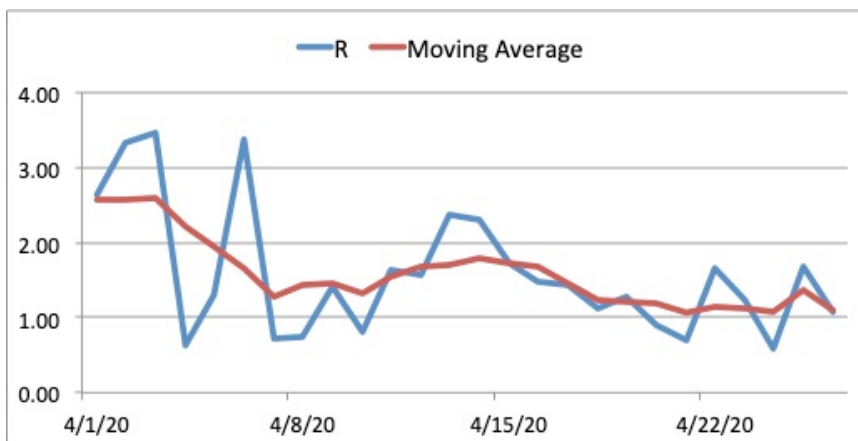
## COVID-19 CASES IN THE PHILIPPINES



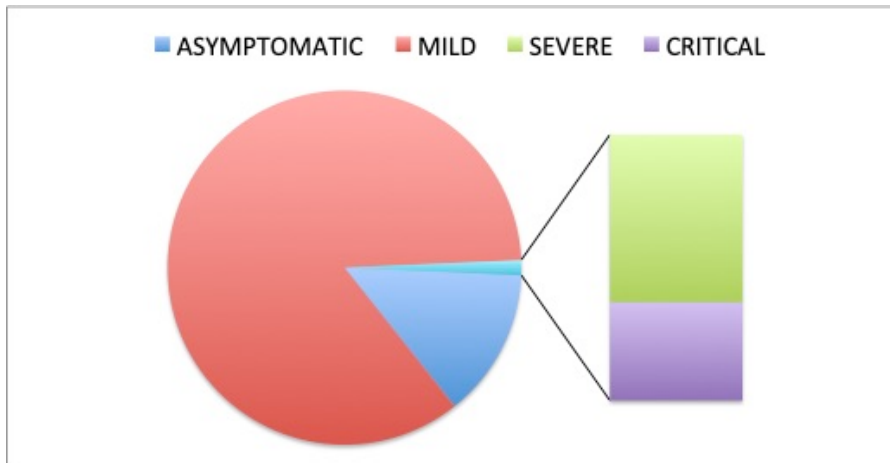
**Figure 1.** Number of Covid-19 cases in the entire Philippines.

Figure 1 shows the number of confirmed Covid-19 cases in the Philippines. Although the rate of increased has slowed since the initial wave of cases, down from 20% increase on March 29 to 2% increase currently, the number of cases is still increasing at a steady rate. There will need to be significant reduction in new Covid-19 cases if we are to control the pandemic.

The measured transmission rates for the Philippines have gone down, and the average reproduction number  $R$ , which measures the potential of the pandemic to spread, has been hovering just above 1. This means that the curve is close to flattening and the pandemic may soon die out. A plot of  $R$  and the 7-day moving average are shown in Figure 2. This is the national average, and geographic variations will be shown in the latter sections of this report. In any case, the ECQ has proven to be successful, especially for a nation that has been challenged in many areas, specifically the lack of available mass testing and hospital facilities. The ECQ needs to be continued in certain areas in order to win the war against Covid-19.



**Figure 2.** Calculated and smoothed basic reproduction number for the entire Philippines. For the nation as a whole, the curve has not flattened because  $R$  is still hovering above 1.

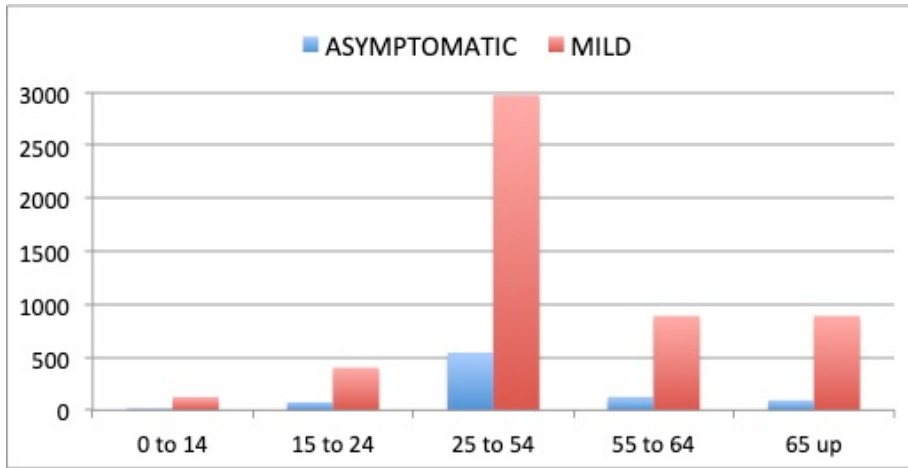


**Figure 3.** Distribution of Covid-19 cases in the Philippines according to severity. Out of every 100 Covid-19 cases, 85 are in mild condition and 14 are asymptomatic (i.e. displaying no symptoms such as fever or coughing), while 1 is either in severe or critical condition.

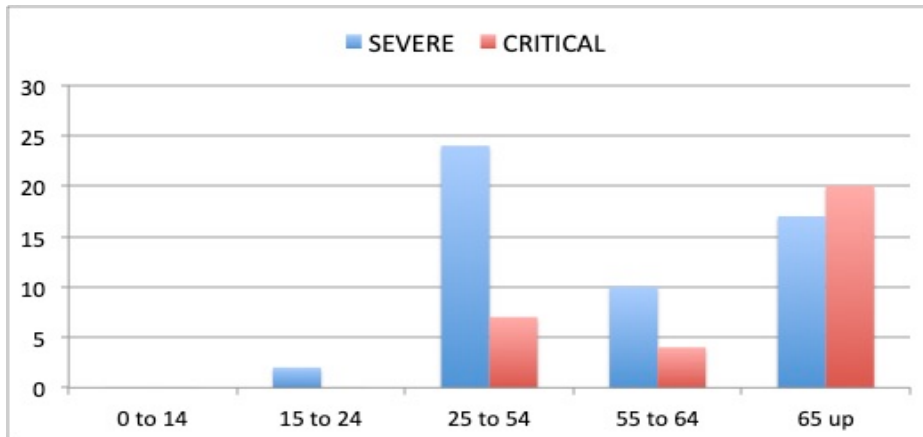
Figure 3 shows the distribution of cases according to severity of Covid-19. Asymptomatic cases are those who have been confirmed to carry the SARS-Cov2 virus but do not display any of the symptoms, such as fever or dry cough, although there may be loss of smell. Mild cases are patients with mild illness have and flu-like symptoms. These may include dry cough and mild fever and there may sometimes be little or even no cough (Patient.Info). In the literature, patients may also fall in the Moderate category, which is between Mild and Severe, but the Department of Health did not use this category. Severe cases are those with fever and noticeable breathlessness. Severe cases should require hospitalization. Critical cases are those who have developed SARS (Severe Acute Respiratory Syndrome), and require intensive care. According to studies in Europe, around 4% of cases are severe, and 50% of cases in critical condition lead to death.

Out of 100 patients in the Philippines, 14 are asymptomatic, 85 are mild (to moderate) cases, and 1 is in severe or critical condition. According to studies made in South Korea and China, up to 30% of cases are asymptomatic. The lower number of such cases according to Philippine data may indicate unreported or untested asymptomatic cases, which could be as many as 1,500 additional asymptomatic cases all over the Philippines. This again highlights the importance of mass testing. Asymptomatic cases carry the SARS-Cov2 virus for up to 2 weeks or even more and may infect other people during this period.

The distribution of asymptomatic and mild cases according to age group is shown in Figure 4. Half of the Philippine population is between 0 and 24 years old, but this group represents just 10% of asymptomatic cases and 10% of mild cases. Overall, the distribution characteristics of mild and asymptomatic cases are similar for each age group. There is a possibility that there are more asymptomatic and even mild cases in the 0 – 24 age group that are not reported in the database.



**Figure 4.** Distribution of asymptomatic and mild cases by age group. Around 10% of the mild cases are people between 0 and 24 years of age. Similarly, around 10% of asymptomatic cases are from the same age group. The 0 to 24 group comprises half of the population of the Philippines. There is a real possibility that Covid-19 cases are under-reported for this age group.



**Figure 5.** Distribution of severe and critical Covid-19 cases by age group. All those in critical condition are of age 40 and above. Covid-19 is dangerous for the elderly but younger patients may still contract a severe case of Covid-19, depending on their health factors.

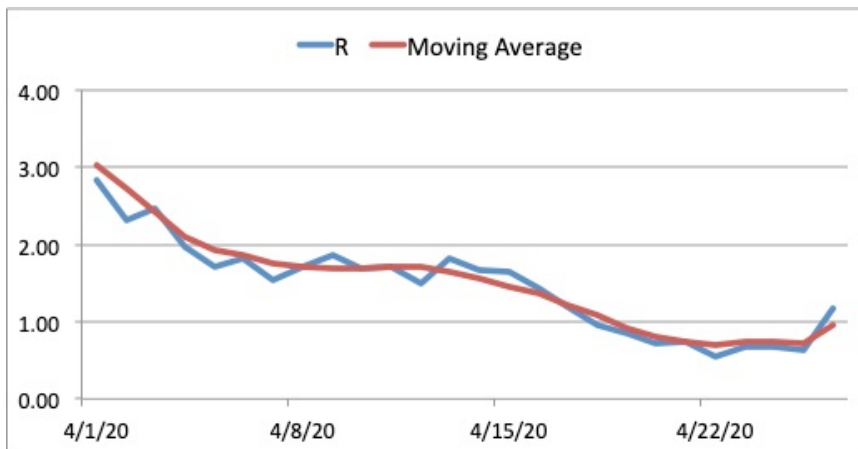
Figure 5 shows the distribution of Covid-19 cases for those in severe and critical condition. Based on DOH data, there are no patients below 40 years old in critical condition. Most of those in critical condition are in the 65 and above age group. Elderly people are those at risk of developing SARS (Severe Acute Respiratory Syndrome).

## **ANALYSIS OF THE PANDEMIC IN SELECTED AREAS IN THE PHILIPPINES**

### **I. REGION IV (CALABARZON)**

Calabarzon, consisting of the provinces Cavite, Laguna, Batangas, Rizal and Quezon, has the largest population for any region in the Philippines. As of April 26, there are 1057 Covid-19 cases with 67 deaths in the region, or a mortality rate of 6.3%. The number of patients who have recovered is 97. The reproduction number of Calabarzon, shown in Figure 6, has been consistently dropping since April 1, 2020, and it fell below 1 by April

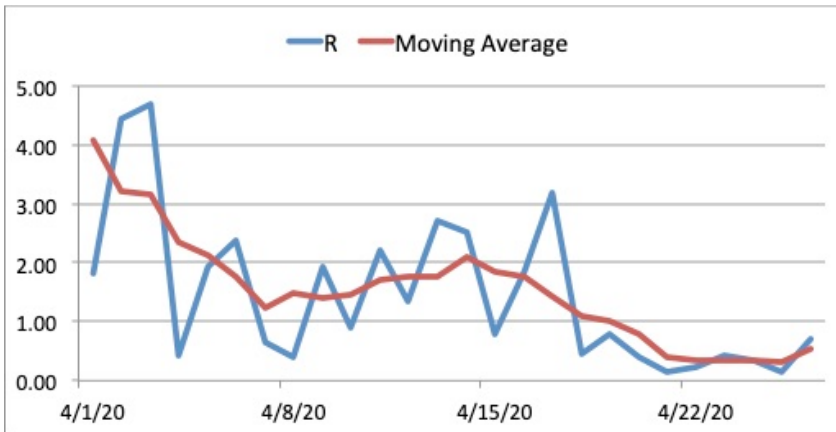
18, 2020, suggesting a flattening of the curve. However, a recent surge in the number of new cases caused the value of  $R$  to increase above 1 as of April 26. The number of new cases reported on April 26 was 40, more than the total number of new cases reported from April 23 to 25. The number of new cases from April 20 to 26 was 109, about 10% of the total number of cases in the region. Resurgence in new cases may be caused by lags in reporting of new cases. Another possible explanation is the increase in testing. This highlights the importance of confirming that the data supports mathematical predictions before major changes are implemented. **Using current trends, our forecasts for May 15 is 1,400 Covid-19 cases and 85 deaths.** We will continue to monitor the progress of transmissions and the reproduction number in Calabarzon.



**Figure 6.** Reproduction number  $R$  for Calabarzon from April 1, 2020 to April 26, 2020. The value of  $R$  has fallen below 1 on April 18 suggesting a flattening of the curve but it has risen again to 1 according to latest data. Further monitoring is needed to make sure the value of  $R$  stays below 1.

## II. REGION III (CENTRAL LUZON)

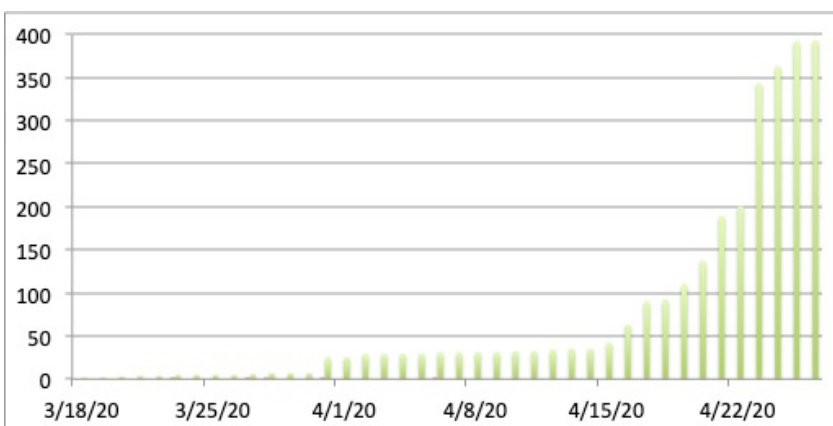
Central Luzon is comprised of the provinces of Bataan, Bulacan, Nueva Ecija, Pampanga, Tarlac, and Aurora. It is the third most populous region in the Philippines. Latest data from DOH shows 359 Covid-19 cases, with 25 deaths and 24 recoveries. The regional mortality rate is 7%. Figure 7 shows the basic reproduction  $R$  number and 7-day moving average from April 1 to April 26. The value of  $R$  has fallen below 1 since April 18, indicating a flattening of the curve. The region still produced 14 new Covid-19 cases during the past week, so it is important that the region continue the trend of decreasing transmissions and satisfy health protocols before GCQ may be recommended on May 15, assuming the decreasing trend of transmission rates and new cases continue. Aurora, with no known Covid-19 cases, has already been moved to the GCQ group. **The forecast for the region assuming latest trends continue is 400 total Covid-19 cases and 28 deaths by May 15, 2020.**



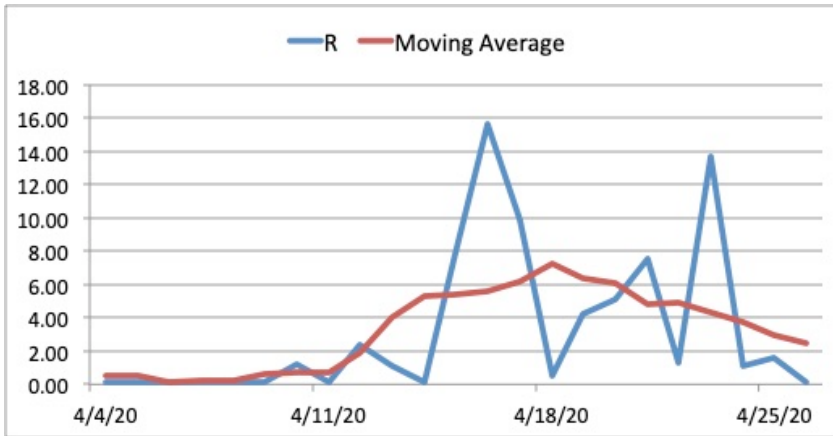
**Figure 7.** Reproduction number  $R$  for Central Luzon from April 1, 2020 to April 26, 2020. The value of  $R$  has fallen below 1 by April 18 suggesting a flattening of the curve. Further monitoring is needed to make sure the value of  $R$  stays below 1. The region may be a candidate for GCQ on May 15 if the transmission continues to decrease, there is a decrease in new cases and health protocols including testing are met.

### III. CEBU

The province of Cebu currently has 393 Covid-19 cases, with 16 deaths and 16 who have recovered. However, the trend has not been good for Cebu over the past weeks. Figure 8 shows the aggregate number of Covid-19 cases in Cebu. The province was enjoying a flat curve until April 15 when new cases of Covid-19 started to appear. Over the past week, 283 new cases of Covid-19, or 72% of their total cases, were reported in Cebu. This highlights again the importance of mass testing and available health facilities. If strict protocols are not put in place, any region or province is susceptible to an outbreak at any given time, as long as the SARS-Cov2 virus is still lingering. Figure 9 shows the reproduction number  $R$  in Cebu, where the recent values are still greater than 2. Clearly, the province must be monitored and strict implementation of ECQ is necessary if the province is to contain the spread of Covid-19. **The forecast for May 15 for Cebu, assuming the ECQ is implemented and will improve the situation, projects 1,300 total Covid-19 cases with 50 deaths.**



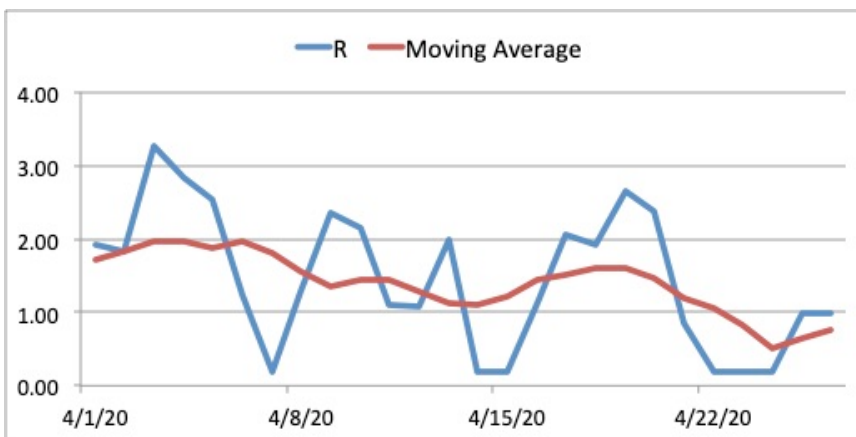
**Figure 8.** Number of cases in Cebu. There was a sudden spike in new cases beginning April 16, 2020.



**Figure 9.** Reproduction number and moving average interpolation for Cebu province from April 4. The graph shows that the curve has flattened in Cebu as of the first week of April. The surge in cases has caused the province to fall back in a state of pandemic after it seemed the pandemic had already been contained. A strict implementation of the ECQ is advised until the spread of the pandemic has been managed.

#### IV. PANAY ISLAND

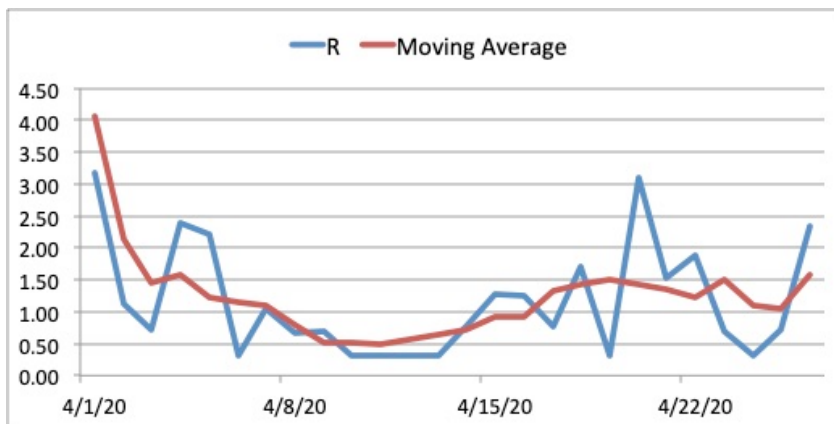
Panay Island is part of the Western Visayas region. The island consists of the provinces of Aklan, Antique, Capiz and Iloilo, and the highly urbanized city of Iloilo. These provinces were still kept under ECQ according to the latest IATF resolution. The first recorded case of Covid-19 occurred on March 21, 2020. The island of Panay currently has a total of 47 cases of Covid-19, which includes 4 deaths and 7 persons who recovered. The current mortality rate for the island is 8.5%. The number of new Covid-19 cases over the past week was 6. The reproduction number for Panay, with the moving average, is shown in Figure 10. The reproduction number has fallen below 1, indicating a flattening of the curve. Meeting the government mandated health benchmarks is essential before changes are made in the ECQ. **The projections for Panay for May 15, using current trends in transmission rates, are a total of 65 cases of Covid-19 and 6 deaths due to Covid-19.**



**Figure 10.** Reproduction number and moving average interpolation for Panay from April 1. The reproduction number  $R$  for Panay has dropped below 1 based on latest trends. Care must be taken to ensure adequate testing and health measures are in place before ECQ is relaxed.

## V. DAVAO CITY

In Davao City, there are 104 Covid-19 cases with 17 deaths and 53 people who have recovered. The current mortality rate for Davao City is 16%. The reproduction number  $R$  and moving average interpolation for Davao City are shown in Figure 11. Note that the daily transmissions have already reduced the value of  $R$  to less than 1 by the 2<sup>nd</sup> week of April. However, a slight resurgence has caused this value to move back over 1 as of the current time. **Our forecasts, assuming a continued decrease in transmission due to the continued implementation of ECQ, project a total of 190 total cases of Covid-19 and 30 deaths by May 15. Continued strict implementation of the ECQ until such time is advised.**

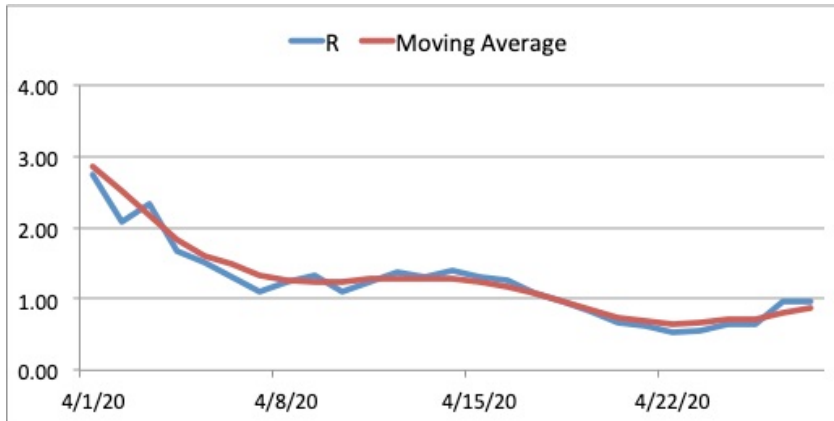


**Figure 11.** Reproduction number  $R$  and moving average interpolation for Davao City from April 1, 2020. The reproduction number  $R$  for Davao City has climbed back above 1 based on latest trends due to an increase in the number of new cases. Continued implementation of ECQ should help push  $R$  below 1.

## VI. NATIONAL CAPITAL REGION (NCR)

NCR is the second largest region by population. The high density of the region increases chances for transmission of Covid-19 due to the higher number of contact opportunities for each infective individual. NCR is also the center of trade and commerce. Not surprisingly, it has the highest number of Covid-19 cases, more than half the total number of cases in the entire country. Currently, NCR has recorded more than 4,500 cases of Covid-19, with a total of 330 deaths, while 550 have recovered from Covid-19. Over the past week, there were 382 new cases of Covid-19 reported by DOH. Figure 12 shows the plot of the reproduction number  $R$  and the moving average interpolation. The reproduction number has decreased to less than 1 over the past week, although a surge in new cases caused the value to increase to almost 1 as of current time. **Assuming a continuation of the current trends, our projections show 6,000 total cases of Covid-19 by May 15, with 430 deaths.** The government must ramp up initiatives for putting in place mass testing and health protocols for NCR.





**Figure 12.** Reproduction number  $R$  and moving average interpolation for NCR from April 1, 2020. The reproduction number  $R$  for NCR has dropped below 1 although latest data has the value creeping back to 1. Continued implementation of ECQ should help push  $R$  below 1.

Detailed analysis of each city and municipality in NCR is provided below. The number of active cases is the total number of cases minus those who died and those who recovered. New cases are cases that were reported during the past 7 days. Mortality rate is the ratio of deaths to total number of cases. Note that the global average mortality rate is 7%. The calculated value of  $R$ , the reproduction number, shown in the tables is the past 7-day average. A value of  $R > 1$  indicates the disease is still spreading, while  $R < 1$  indicates the curve is flattening. Note that these are instantaneous values of  $R$  calculated from DOH data, and that trends may change very quickly with each day. This again highlights the importance of making sure that observation and actual data support the calculations of a model before major policy changes are implemented. A mathematical model is just an estimate of reality. It is a useful tool for guiding our policies and making an educated guess on the effects of policy on the pandemic.

Table 1 below shows the data for cities in NCR Districts I and II. Quezon City and Manila still have the highest number of Covid-19 cases, based on Department of Health data (the data is generally based on the location of the hospital making the report, so there may be discrepancies with the actual city of residence of the patient). The calculated value of  $R$  depends in part on the number of recent Covid-19 cases. Marikina and San Juan are doing well as far as reducing transmissions. Despite having a large number of new cases, with Districts I and II accounting for 53% of new Covid-19 cases in Metro Manila, all cities in Districts I and II have  $R < 1$ , i.e. the curves are flattening.

**Table 1.** NCR District I and II showing the total number of cases of Covid-19, active cases, deaths, recovered, new cases (i.e. appearing during the past 7 days), mortality rate and basic reproduction number  $R$  indicating the potential of the pandemic.

|             | Total | Active | Deaths | Recovered | New* | Mortality | $R$  |
|-------------|-------|--------|--------|-----------|------|-----------|------|
| Manila      | 618   | 496    | 43     | 79        | 57   | 7%        | 0.75 |
| Mandaluyong | 349   | 307    | 19     | 23        | 31   | 5%        | 0.72 |
| Marikina    | 116   | 85     | 10     | 21        | 3    | 9%        | 0.33 |
| Pasig       | 270   | 196    | 38     | 36        | 12   | 14%       | 0.54 |
| Quezon City | 1166  | 928    | 91     | 147       | 77   | 8%        | 0.58 |
| San Juan    | 217   | 151    | 18     | 48        | 9    | 8%        | 0.42 |

Table 2 below shows the data for cities in District III. Caloocan is the third largest city by population, but it is 9<sup>th</sup> in NCR based on number of Covid-19 cases. Caloocan has a reproduction number value  $R < 1$ , which indicates flattening of the curve. On the other hand, the other three cities all have a large number of new cases relative to the total. In fact, Malabon, Navotas and Valenzuela all have  $R > 1$ , indicating that these cities still need to monitor ECQ closely in order to reduce the rate of transmissions. Comparing with other cities in NCR, these three cities are the only ones where there is still an increasing trend of transmissions for the past week. Trends can change suddenly, so it is important that we continue to monitor these cities and other cities in NCR to check their patterns of increasing or decreasing transmissions.

**Table 2.** NCR District III showing the total number of cases of Covid-19, active cases, deaths, recovered, new cases (i.e. appearing during the past 7 days), mortality rate and basic reproduction number  $R$  indicating the potential of the pandemic. Only Caloocan has  $R < 1$ , indicating flattening of the curve. Malabon, Navotas and Valenzuela all have  $R > 1$ . A continued implementation of ECQ will help reduce the value of  $R$  in these cities.

|                   | Total     | Active    | Deaths   | Recovered | New*      | Mortality  | $R$         |
|-------------------|-----------|-----------|----------|-----------|-----------|------------|-------------|
| Caloocan          | 202       | 167       | 19       | 16        | 25        | 9%         | 0.80        |
| <b>Malabon</b>    | <b>35</b> | <b>29</b> | <b>3</b> | <b>3</b>  | <b>8</b>  | <b>9%</b>  | <b>1.82</b> |
| <b>Navotas</b>    | <b>30</b> | <b>25</b> | <b>5</b> | <b>0</b>  | <b>5</b>  | <b>17%</b> | <b>1.14</b> |
| <b>Valenzuela</b> | <b>74</b> | <b>57</b> | <b>4</b> | <b>13</b> | <b>21</b> | <b>5%</b>  | <b>2.02</b> |

Table 3 below shows the data for cities in District IV. Taguig, Paranaque, Makati and Las Pinas are all major cities with population above 600,000. Makati and Paranaque both have a higher number of cases. Makati is the best performing city in this district in terms of reducing  $R$ , although all cities and municipality (Pateros) have a recent value of  $R < 1$ , indicating a flattening of the curve.

**Table 3.** NCR District IV, showing the total number of cases of Covid-19, active cases, deaths, recovered, new cases (i.e. appearing during the past 7 days), mortality rate and basic reproduction number  $R$  indicating the potential of the pandemic. All cities in this district have  $R < 1$ , indicating flattening of the curve.

|            | Total | Active | Deaths | Recovered | New* | Mortality | $R$  |
|------------|-------|--------|--------|-----------|------|-----------|------|
| Las Pinas  | 156   | 133    | 6      | 17        | 10   | 4%        | 0.52 |
| Makati     | 385   | 293    | 16     | 76        | 21   | 4%        | 0.47 |
| Muntinlupa | 145   | 121    | 12     | 12        | 11   | 8%        | 0.65 |
| Paranaque  | 393   | 322    | 30     | 41        | 26   | 8%        | 0.52 |
| Pasay      | 165   | 142    | 7      | 16        | 18   | 4%        | 0.67 |
| Pateros    | 23    | 17     | 3      | 3         | 2    | 13%       | 0.83 |
| Taguig     | 238   | 191    | 12     | 35        | 20   | 5%        | 0.65 |

## SUMMARY AND RECOMMENDATIONS

We summarize our forecasts for the provinces, regions and cities still under ECQ in Table 4 below. The forecasts are based on current trends in each area and assume a continued, perhaps stricter in areas that require it, implementation of ECQ. The effects of opening up certain business sectors on the transmission rate of Covid-19 will be determined as data comes in. Note that data used for most forecasts were until April 26, except in NCR and Cebu where data used was current until April 27.

**Table 4.** Summary of projections for May 15 for provinces and cities still under ECQ, assuming a continued implementation of ECQ in these areas. The actual numbers will depend in part on the continued implementation of ECQ and on the effect of opening up certain business sectors by May 1 in these areas. The data is current until April 26, except for NCR and Cebu where data is current until April 27.

|               | Cases<br>(04/26) | Deaths<br>(04/26) | Cases<br>(05/15) | Deaths<br>(05/15) |
|---------------|------------------|-------------------|------------------|-------------------|
| NCR*          | 4,632            | 338               | 6,000            | 430               |
| CALABARZON    | 1,057            | 67                | 1,400            | 85                |
| Central Luzon | 359              | 25                | 400              | 28                |
| Cebu*         | 432              | 6                 | 1,300            | 50                |
| Panay Island  | 47               | 4                 | 65               | 6                 |
| Davao City    | 104              | 17                | 190              | 30                |

It has been over a month since the Enhanced Community Quarantine (ECQ) was implemented in Luzon on March 15. While there are indications that the curve is flattening in most cities in NCR, Calabarzon and Central Luzon (the three Luzon regions analyzed in the report). Our findings show that the ECQ has been effective in reducing the number of transmissions of Covid-19. **In NCR, however, Malabon, Navotas, and Valenzuela have  $R$  greater than 1.** These estimates are based on the most recent 7-day average of the reproduction number. The continued implementation of the ECQ should help reduce this below 1. In the Visayas region, the value of  $R$  in Cebu has increased dramatically over the past weeks. The situation in Cebu shows how rapidly Covid-19 may spread even with enhanced community quarantine in place. In Mindanao, the value of  $R$  in Davao City is still above 1 but a continued implementation of ECQ, which started on April 4, should push this below 1.

A decrease in the value of  $R$  is a positive indicator. However, the mathematical model used, with all its limitations and underlying assumptions, is still highly dependent on complete and valid data. Caution must be made to avoid complacency based on the results of a mathematical model. Trends may reverse at any time. While the curve has flattened or is close to flattening in major affected regions in the Philippines, including Calabarzon, Central Luzon, Panay Island, and most cities in NCR, the flattening of the curve is not permanent state. It needs sustained enforcement of social distancing.

Without certainty in the number of cases due to lack of mass testing, we may still be in the dark regarding the actual gravity of the pandemic. Further, there are still new Covid-19 cases in most of these regions that, if not managed properly, could lead to new outbreaks similar to the case in Cebu City. In this regard, we anticipate a possible increase in the number of cases due to the following:

- (1) Transmissions inside health facilities
- (2) Increased testing confirming more people as Covid-19 cases
- (3) Undetected asymptomatic cases which may infect other individuals
- (4) Lags in reporting of cases may cause sudden increases as the backlogs are reported
- (5) The incubation period of the SARS-Cov2 virus may be longer than the 14-day quarantine period

Given these, we recommend the following:

1. We reiterate our recommendation in our previous report that three other health safeguards must be in place aside from a decline or absence of cases for at least two weeks. These minimum safeguards are as follows: (a) mass randomized testing capability, (b) effective contact tracing, and (c) sufficient health facilities, equipment, and isolation areas to deal with Covid-19 cases and other diseases in the area. These are crucial if we are exploring loosening or modifying restrictions. We **caution** the government on the premature relaxation of the Enhanced Community Quarantine without substantial data and without the minimum health safeguards in place in affected areas regardless of the historical number of cases.
2. Moving forward, we reiterate the strategic importance of the continued expansion of our testing capability. This will enable a greater number of our labor force to return to work and hasten economic recovery. The estimate for the United States contained in a roadmap published by the Edmond J. Safra Center of Ethics at Harvard University is between 2 to 6 percent of the population. This estimate, however, is applicable if the economy is going to re-open fully. Given that restrictions will be in place, a capacity similar to that of South Korea, at 15,000-tests per day for Luzon, would be optimal given that South Korea and the island of Luzon both have around 50 million people. Testing will help us determine the actual number of Covid-19 cases and prevent infective individuals, particularly asymptomatic cases, from spreading the virus. This will help our policy makers put in place the appropriate rules for each region or area.
3. Once we confirmed that an individual is infected with the virus through mass testing, we need an efficient and effective contract tracing system to track those who could have been exposed to the infective individual. To this end, the national and local government should consider hiring and training more personnel to do contact tracing. Where applicable, digital contact tracing apps should be used. While locating and identifying suspected cases is imperative, proper attention must be given to ensure that the person is not put in harm's way by maintaining privacy.

While technology like peer-to-peer warning system and other apps are available, there might be limited utility in certain areas where smartphones are not prevalent. More than locating and identifying suspected cases, proper attention must be given to ensure that the person is not put in harm's way by maintaining privacy and reducing the stigma of being a suspected case. Mass testing without effective contact tracing will only increase the value of  $R$  and without stemming possible new infections especially once the restrictions are loosened.

4. Digital contact tracing through the use of mobile phones can reduce the burden of data collection on public health workers; improve accuracy of data; and, enable the identification of contacts unknown to the patient. The Data Protection Act, as

well as an issuance of the National Privacy Commission, guarantees that the digital tools and solutions that will be used to combat COVID 19 will preserve and protect the data privacy rights of individuals. Privacy Protecting Digital Contact Tracing (PP DCT) is not only a tool to break the chain of infection. It will also enable a more targeted testing for the infection. PP DCT will also allow government to wield quarantine as a precision tool. Only those found to have contact with infected persons become candidates for quarantine. Without PP DCT, quarantine becomes a blunt instrument. If health authorities cannot determine who have been in contact with infected persons, they simply quarantine everybody.

5. Supportive isolation programs and facilities must be available and sufficient especially in areas that will remove or loosen restrictions on mobility. Home quarantine might not work for everyone especially in informal settlements where staying indoors maybe challenging. Provisions for food and other forms of social amelioration for the family during the quarantine period might be needed to ensure that they will observe restrictions in place. A humane approach that respects the rights and dignity of the person will facilitate compliance with rules.
6. We also recommend that greater effort be given to the expansion of the health system capacity especially those needed to combat Covid-19 like personal protective equipment, ventilators, and isolation rooms. Considering that people are afflicted with other diseases would also need a share of the health resources, shortage of health facilities and supplies could result to deaths not because of Covid-19 but due to being crowded out from the Covid-19 strained health system. We need to scale up hiring of health human resources to deal medium to long term impact of the pandemic.
7. We are urging the Department of Health (DOH) to hasten the setting up of Covid-19 laboratories and the accreditation of other laboratories across the country. To this end, we are suggesting that the DOH consider utilizing laboratories hosted in DOH-owned hospitals and in state universities and colleges with medical schools and vacant land. This network of Covid-19 laboratories will help enable the massive testing needed in the months to come.
8. Prospectively, on the health system, serious consideration should be given to the **creation of a Philippine Center for Disease Control and Prevention**, an undersecretary portfolio under the Department of Health. We need to strengthen and expand the resources and capabilities of the current Research Institute for Tropical Medicine (RITM) for pandemic surveillance, forecasting and management. This also includes expanded testing and laboratory capability. Moreover, the Epidemiology Bureau of the Department of Health could also be integrated under the Center. As revealed in previous Congressional hearings, the bureau had a shortage of people to undertake contact tracing. The Bureau should be given more resources and people through this proposed Center.

9. We also need to continue to enhance the capability of government, particularly of local government units to deal with this, and future, health crisis. Government agencies should hasten the transformation of their (manual) processes through the use of Information and Communications Technology. ICT will enable not only better services delivery but also the timely collection of data. In addition to digitalization, the executive branch should also fast track the implementation of the National ID System.

Local governments play a critical role during a public health emergency. Strengthening local government units would include the use of digital technology to enhance the Community Based Monitoring System. The digital transformation of LGUs will also lead to more accurate and better-quality data – key to better decision-making and policies. Digital LGU systems will also make for more effective and easier program implementation as well as monitoring and evaluation.

10. In combatting the Covid-19 pandemic, it is important that the President continue to have the powers to realign and redirect resources. We urge Congress to consider the **extension of Republic Act No. 11469** subject to modifications on provisions affecting freedom of expression as these are already provided in the revised penal code and on the take over of operations of hospitals and other enterprises as these are proven to be unnecessary at the height of the crisis. Business has been willing to shoulder its fair share in ensuring that we overcome the pandemic.

As part of the extension of the Act, provisions for additional social amelioration funds for affected areas may be provided including stronger penal provisions for those who will commit corrupt practices related to the Covid-19 initiative. The penal provisions should not be covered by the time limitation of the act.

11. Moreover, it is important that a stimulus package be put in place to address needs that cannot be provided by existing projects and programs (PAPs) under the 2019 and 2020 General Appropriations Act. Aside from the social amelioration program, RA 11469 authorizes only the augmentation of existing PAPs. New programs to assist various sectors of the economy would need authorization from Congress either in the form of a supplemental budget or a separately billed program. The provision of a stimulus package will bring more objectivity to those affected sectors who are pushing for the opening of the economy due to economic losses.
12. Penultimately, this stimulus package must be based on a multi-stakeholder **National Recovery Plan** to ensure that no sector will be left behind and that government, civil society, and business are united in one direction. The plan should define a role for the private sector and civil society in the recovery process. It should include not just economic but also social, health, and governance reform initiatives. It should also define a blueprint on the use of ICT

in government. For instance, in education, this means providing online platforms for students to use for free. Online services such as these can be **zero-rated**, as what Korea has done for selected education related websites. Similarly, online reporting, and public services systems should also be zero-rated to reduce the friction of access and use of these services.

13. Finally, the implementation of the community quarantine should draw the best from all of us by ensuring that it is humane and ethical; with civil rights protected and due process respected. Health and data privacy protection must also be ensured.

In closing, the Covid-19 pandemic will continue to be a threat not just to development but also to democracy in the years to come. This is a major challenge that requires unprecedented collaboration and cooperation between government, business, civil society and every Filipino. In the long run, the threat of Covid-19 will be overcome not just by the hard work and sacrifice of our front liners but also largely by the everyday acts of citizenship and leadership of individuals in communities.