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COVID-19 and Greater Manila's health system: The Next Frontline?

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How close are Greater Manila's healthcare systems from being overwhelmed by COVID-19? Since early March, the Duterte administration has imposed an Enhanced Community Quarantine (ECQ) over the whole of Luzon to "flatten the curve" of contagion. Yet with the persisting transmission of the pandemic, it recently extended the ECQ until April 30, 2020, while raising the possibility of a "modified lifting" the lockdown after this period.

Among the key criteria for decisions on how to modify the ECQ in the upcoming weeks should be the extent to which already-saturated health systems in COVID-19 hotspots— especially NCR, CALABARZON, and Central Luzon— can absorb more severe coronavirus cases. However, though the focus of public attention on NCR has been warranted, even starker gaps are now emerging in Metro Manila's peripheries, which could be another time-bomb ticking away in the country's battle against COVID-19.

Significant infections even with ECQ continuation. In the past weeks, projections by experts— including by UP professors (also here), Ateneo professors (also here), and private sector data scientists— have indicated that the rise in coronavirus patients is still poised to reach its peak between May and June 2020, up to two months after the end of the extended ECQ period. That transmission is still projected to continue during the lockdown is not surprising, given the limited mobility afforded to skeletal workforces, households, and providers of essential commodities, as well as uneven local enforcement of the ECQ.

Estimates generated by Ricardo Dizon, a PhD graduate from the Ateneo de Manila University, provide a sense of the wave of patients in Metro Manila in the upcoming weeks. Even with radically-reduced mobility (0.5% of regular volume) in NCR due to the ECQ, more than 4,500 new episodes of COVID-19 could require hospitalization at the curve's apex in early May (Figure 1)— while more than 750 new patients could be in need of intensive care units (ICUs).

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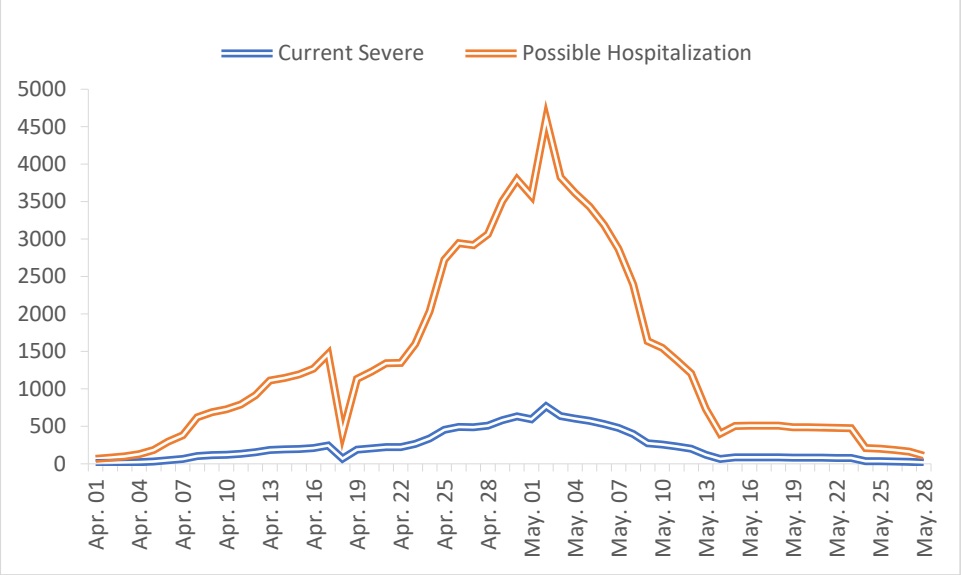
Figure 1. Projected Cases of COVID-19 in Metro Manila Requiring Hospitalization, April-May 2020*



Source: Dizon (2020), based on an SIR Model

*Hospitalization/Severe case rate estimated from Dizon's Model in line with guidelines from the Bandoy Model (2020) of COVID-19

Though Dizon's estimates do not include figures for Rizal, Laguna, Cavite, and Bulacan, these areas already have the highest concentration of COVID-19 cases outside of NCR, as well as the country's greatest provincial population densities. Because of this, they can be expected to follow a similar, if less severe, trend.

Hospitals' capacity for severe cases is extremely limited—especially in Greater Manila provinces. Despite the fragmented state of the Philippines health information systems, what the available data (Figure 2) suggests gives cause for concern about the Greater Manila health system's ability to accommodate critical coronavirus cases.

Figure 2. Greater Manila Level 2 and 3 Hospitals and Estimated Max. ICU Capacity*

	# of L2 Hospitals	*L2 ABC*	*Max. ICU Beds*	*# of L3 Hospitals*	*L3 ABC*	*Max. ICU Beds*	*Total ABC*	*Total Max. ICU Beds*
METRO MANILA	38	3626	190	58	22,685	1740	26,511	1930
Cavite	19	1571	95	2	534	60	2105	155
Laguna	22	2145	110	1	250	30	2395	140
Rizal	7	639	35	0	0	0	639	35
Bulacan	11	861	55	1	300	30	1161	85

Source: DOH HSFRB

*According to Former DOH Secretary and ASMPH Dean Manuel Dayrit, L2 hospitals have a maximum of 5 ICU beds, and L3 hospitals, 30 ICU beds.

While Level 2 and 3 hospitals (which can host ICUs) located in Metro Manila span an authorized bed capacity (ABC) of 26,511 beds, and Greater Manila provinces 6,300 beds, most hospitals typically operate at 70-80 percent of their full capacity, meaning that hospitals' actual bed capacity is far more limited. Indeed, since the

beginning of April *at least 44 such hospitals in the Greater Manila vicinity (36 in NCR) have no longer been accepting COVID-19 admissions.* Due to such hospital saturation, DOH has reported, as of April 12, that only 629 ward beds and 1,878 isolation beds were available for COVID-19 patients nationwide.

Even more alarming are the sparse number of ICU beds. The estimated maximum number of ICU beds (1,930 in NCR, 415 in Greater Manila provinces) substantially exceeds the actual number of intensive-care beds available the extended Manila region, considering that there were reportedly only 1,572 ventilators in the entire country (usually assigned to a single ICU bed). Worse, DOH has indicated that only 672 mechanical ventilators were left available for coronavirus patients across the country as of writing— already below the 750 critical cases projected earlier for NCR. *In short, unless immediate efforts are taken, the current capacity of Greater Manila's hospitals to handle more severe cases of COVID-19 may not be sufficient to cope with the expected rise in patients in the upcoming weeks.*

Figure 3. Greater Manila Provinces, COVID and Health System Statistics

	Admitted COVID-19 Cases (as of April 12)	***Persons per est. max ICU beds, 2018****	***Persons per public doctor, 2018***	***Persons per public nurse, 2018***
NCR	2,019	6,998	20,519	13,308
Cavite	84	25,931	47,182	20,131
Laguna	113	23,231	35,546	14,811
Rizal	164	89,489	50,877	23,126
Bulacan	47	41,262	41,427*	25,098*

Source: DOH, PSA, DOH-FHSIS
*Estimated

Yet these gaps are sharpest for the Greater Manila provinces, which are caught with the highest provincial infection rates outside of NCR, the highest provincial population densities— and much weaker health systems capacity (Figure 3). In fact, Cavite, Bulacan and Rizal had a public doctor-to-population ratio more than double that of Metro Manila's. Likewise, though the number of ICU beds for their populations have been dismal for all four provinces compared to NCR, the most extreme shortages are in Rizal and Bulacan, whose L2 and L3 hospitals can only permit for a maximum of 35 and 85 ICU beds (Figure 2).

With eight hospitals in these four provinces already reporting full bed capacity at the beginning of April, Metro Manila's outskirts could be the next time-bomb in the country's fight against coronavirus: hyper-urbanized, at NCR's doorstep and thus extremely vulnerable to contagion— yet lacking the systems needed to confront the outbreak.

Bracing for the surge. The coronavirus pandemic has ushered in a perfect storm of possible coordination failures. An inability to stamp down the spread of infection in only one locality, wherever it may situated, could pave way for a broader resurgence of the disease.

In this case, the vulnerabilities of the health systems of the Greater Manila provinces do not only intensify the risks for their residents; by being located on Metro Manila's backyard, they lay the possibility for new waves of the pandemic to buffet the nation's capital. To mitigate the possibility of this occurring, the following measures are urgently needed:

- **Facilities, ICUs, and medical equipment:** As is being done with the Philippine Arena in Bulacan, facilities in Greater Manila provinces must to be rapidly retrofitted for coronavirus-response purposes, including by dedicating more health facilities for handling and isolating milder COVID-19 cases. Compared to NCR, there may need to be even more facility conversions, to minimize risks from having possible COVID-19 patients travel long distances.

  Even more crucial, however, should be the significant expansion of hospitals' intensive care capacities, including through the provision of 'COVID Cabanas' and other temporary ICU facilities. Linked to this is the need to quickly expand the country's supply of mechanical ventilators, including through low-cost, locally-produced alternatives.

- **Random testing across Greater Manila with localized mass-testing:** While there has been a recent increase in the availability of local testing kits, continuing limitations in resources and processing capacity means that mass-testing the entire Greater Manila population of 25.8 million persons is unlikely in the short term. In the interim, undertaking random-testing across the Greater Manila region may be a more viable strategy to identify population clusters where coronavirus infections are increasing, which can then be targeted for localized mass-testing.

- **Industrial Policy for COVID-19:** Reports of doctors and nurses dying from COVID-19 due to the lack of personal protective equipment (PPE) have arisen, and there remains a widespread shortfall of PPE supplies across health facilities. The Philippine General Hospital alone reportedly requires 900 sets of PPE per day. Though many private sector groups have begun producing PPE sets, government could strengthen coordination in the development of PPE supply for health workers and mechanical ventilators (and other equipment for ICUs) by integrating it as an immediate priority area in its industrial development strategy.