Looming dengue burden at the time of COVID-19

SARS-CoV-2, otherwise known as COVID-19, has been observed to increase in the past months, since its emergence in Wuhan, China on December 2019. As of May 22, 2020, COVID-19 confirmed cases has gone beyond 5.1 million infected individuals across 188 countries with more than 300,000 recorded deaths. Country-specific health systems have been configured to contain the pandemic through various control measures, such as community quarantines, isolation, among others. In the Philippines, an enhanced community quarantine took effect on March 15, 2020 as an effort to flatten the epidemic curve. While model simulations indicate the possible epidemic peak in June, the successive implementation of control measures may delay the plateauing to the latter half of the year, thereby providing the health system time to cope with the daily influx of COVID-19 cases as a result of active infection.

As countries battle COVID-19, there is a looming threat of dengue, a vector-borne tropical disease, when the season shifts to the rainy months. In 2019, the Philippines declared dengue as a national epidemic, with record-breaking 20,320 incident cases in the month of August. Dengue transmissions generally strive in human dwellings. The stringent mobility control in most of the areas in the country resulting to susceptible populations restricted in one place could lead to heightened transmission. A 30-year observational study noted the substantial increase in the incidence of dengue from 1980 to 2010 among five Southeast Asian countries, namely Thailand (6.7%), Viet Nam (10.4%), Indonesia (12.0%), Malaysia (18.1%) and the Philippines (24.4%). Aside from the apparent disease burden associated with dengue, the
accompanying economic consequences among Southeast Asian countries revealed an estimated annual economic burden of USD 950 million (95% Confidence Interval (CI): USD 610 million to USD 1,384 million) or an equivalent USD 1.65 (USD 1.06 to USD 2.41) per capita with 214,000 (95% CI: 120,000 to 299,000) disability-adjusted life years. In a global scale, total annual cost dengue illness was at USD 8.9 billion (95% uncertainty interval (UI): 3.7 billion to 9.7 billion). In the same report, Shepard et al. estimated that 18% of the global distribution of dengue cases constitute hospital admission, whereas 48% were ambulatory, and the remaining 34% as non-medical cases.

Assuming a similar trend of dengue incidence, the cases would start to pick up from June, peak in August, and gradually decrease by the end of the year, as shown in Figure 1. If the peak of COVID-19 were to be delayed beyond June, it may coincide with the early phase of the dengue incidence curve, thereby overwhelming the country’s health system. As of May 22, the country’s available health facility capacity is at 65.2%, with a breakdown of 66.3%, 65.1%, and 65.3% of the 1,256 total intensive care unit beds, 8,963 total isolation beds, and 2,383 total ward beds, respectively. With the current country health system devoting almost one-thirds of its resource to combat COVID-19, an apparent surge of dengue cases, which is of higher magnitude, will overburden the health system. The concurrent outbreak of COVID-19 and dengue may lead to the delay in recognition of the presence of one or other circulating diseases in the communities. Several tropical countries have observed concurrent outbreaks of H1N1 influenza and dengue, which led to a difficulty of identification and subsequent management since both diseases share a wide range of clinical presentations.
With the looming early phase of the dengue burden not just in the Philippines, but also to countries in the region which share similar dengue endemic trend, governments should prepare a health management plan for dengue, to absorb the shock it (dengue) would put on the health system. Complementary household level strategies, such as searching and destroying mosquito breeding sites, may also provide an opportunity to reduce the risk of dengue transmission. Likewise, in order to avoid the overlapping peaks, strategies which could delay the COVID-19 peak towards the end of the dengue peak, are needed to avert the impending double burden due to simultaneous plateauing of both epidemics.

References

10. Silarug N, Foy HM, Kupradinon S, Rojanasuphot S, Nisalak A, Pongsuwant Y. Epidemic of fever of unknown origin in rural Thailand, caused by influenza A (H1N1) and