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COVID-19 and dengue: Pushing the peruvian health care system over the edge

Dear Editor,

On February 25, 2020, the first case of Coronavirus Disease 2019 (COVID-19) was reported in Latin America (LA). Brazil was the first country. However, there was a rapid widespread throughout LA due to its high transmission efficiency, lack of travel restrictions, and, in some cases, the delay (or absence) of effective health-related policy decisions [1].

In Peru, the first case of COVID-19 was confirmed on March 6, 2020, in a 25-year-old man with a recent travel history from Europe. Unfortunately, the country was already facing a nationwide state of emergency due to an outbreak of Dengue fever that started in October 2019. Thus, in early 2020, the Ministry of Health (MINSA) had already reported an incidence of 7.83 cases/100,000 inhabitants [2], and, by the end of the first trimester, the confirmed cases were above 10,000 (Table 1). Simultaneously, since the first reported case, COVID-19 has increased exponentially. At the end of the epidemiological week 24 (EW24), June 13, MINSA reported a total of 225,132 cases, 10,342 hospitalized patients, 1113 in Intensive Care Units (ICUs) and 6498 deaths. Additionally, several regions in northern Peru (Loreto, Lambayeque, Piura and La Libertad) not only have a considerable number of Dengue cases but are also in the Top 6 of COVID-19 cases.

It is important to mention that both diseases share some epidemiological characteristics, such as an increasing incidence and difficult control. Similarly, COVID-19 and dengue could be hard to distinguish because they also share some clinical and laboratory characteristics [3]. Therefore, the healthcare management of patients with any of these diseases represents a real challenge (and we cannot rule out that the

Table 1
New and cumulative cases/deaths for dengue and COVID-19, according to epidemiological week.

EW	New cases[b]		Cumulative cases by week[b]		New deaths[b]		Cumulative deaths by week[b]	
	Dengue	COVID-19	Dengue	COVID-19	Dengue	COVID-19	Dengue	COVID-19
1	475	0	475	0	0	0	0	0
2	597	0	1072	0	6	0	6	0
3	663	0	1735	0	1	0	7	0
4	849	0	2584	0	2	0	9	0
5	929	0	3513	0	2	0	11	0
6	946	0	4459	0	0	0	11	0
7	931	0	5390	0	0	0	11	0
8	877	0	6267	0	4	0	15	0
9	857	0	7124	0	7	0	22	0
10	1103	6	8227	6	6	0	28	0
11	819	37	9046	43	0	0	28	0
12	629	275	9675	318	0	5	28	5
13	549	353	10,224	671	0	11	28	16
14	570	1075	10,794	1746	-[a]	57	-[a]	73
15	552	5102	11,346	6848	-[a]	108	33	181
16	787	7572	12,133	14,420	0	168	33	349
17	606	10,911	12,739	25,331	0	351	33	700
18	503	17,203	13,242	42,534	0	500	33	1200
19	415	22,481	13,657	65,015	2	614	35	1814
20	355	23,526	14,012	88,541	0	709	35	2523
21	244	27,213	14,256	115,754	1	850	36	3373
22	138	39,917	14,394	155,671	0	998	36	4371
23	23	36,087	14,417	191,758	0	930	36	5301
24	-[a]	33,374	-[a]	225,132	-[a]	1197	-[a]	6498

[a] At the time of the last update of this manuscript (June 16, 2020), there was no data for dengue.

[b] Only confirmed cases were included EW (d/m/y): EW1: 01/01/20 to January 04, 2020, EW2: January 05, 2020 to January 11, 2020, EW3: January 12, 2020 to January 18, 2020, EW4: January 19, 2020 to January 25, 2020, EW5: January 26, 2020 to February 01, 2020, EW6: February 02, 2020 to February 08, 2020, EW7: February 09, 2020 to February 15, 2020, EW8: February 16, 2020 to February 22, 2020, EW9: February 23, 2020 to February 29, 2020, EW10: March 01, 2020 to March 07, 2020, EW11: March 08, 2020 to March 14, 2020, EW12: March 15, 2020 to March 21, 2020, EW13: March 22, 2020 to March 28, 2020, EW14: March 29, 2020 to April 04, 2020, EW15: April 05, 2020 to April 11, 2020), EW16: April 12, 2020 to April 18, 2020), EW17: April 19, 2020 to April 25, 2020), EW18: April 26, 2020 to May 02, 2020), EW19: May 03, 2020 to May 09, 2020), EW20: May 10, 2020 to May 16, 2020), EW21: May 17, 2020 to May 23, 2020), EW22: May 24, 2020 to May 30, 2020), EW23: May 31, 2020 to June 06, 2020, EW24: 07/06/20 to 13/06/20).

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number of dengue-related deaths is underestimated). Additionally, although in Peru the case fatality rate of dengue is lower than that of COVID-19, some clinical manifestations such as dengue with alarm signs and severe dengue may need hospitalization and ICU admission (according to Peruvian guidelines [4]). To make matters worse, the number of probable cases has followed a similar pattern to that of confirmed cases, with an approximate ratio of 2:1, which increases, even more, the demand for healthcare services and resources in the country.

In Peru, drastic measures have been implemented in order to achieve the mitigation of the impact of COVID-19/Dengue. These included the publication of two supreme decrees (N°044-2020-PCM and N°004-2020-SA). However, different limitations have arisen, especially since the first case of COVID-19 was reported. For example, the lack of ICUs availability, ventilators, diagnostic and screening tests, personal protective equipment (PPE) and health workforce. Similar scenarios have been reported in other LA countries, such as Brasil [3] and Ecuador [5].

Currently (16/06/20), the country is going through its fourteenth week of quarantine and COVID-19 continues spreading (237,156 cases and 7056 deaths to date). At the time of submission of this manuscript, the EW24 surveillance report for dengue was still not available. Although the number of deaths has not changed in the previous EW21 to EW23, the increase of Dengue cases is likely to become more evident in the next weeks or months. This could add more pressure on a health system that is already being pushed to the brink of collapse.

Peru has been making every effort to stop the spread and mortality rate of COVID-19 and we have to be optimistic. We still cannot be sure when this pandemic will end. However, when this happens, we should start by strengthening our health care system. As an old saying goes, “certain experiences mark the beginning of maturity."

Ethics approval and consent to participate

Not applicable.

Consent for publication

Not applicable.

Availability of data and material

All data and materials used in this manuscript were publicly available. Data sources included weekly and national surveillance reports from the Center for Disease Control and Prevention (Ministry of Health, Peru), and daily reports published in the Peruvian Digital Platform Gob.pe. Cumulative confirmed cases of dengue were obtained using the Virtual Dashboard of Health Situation (https://www.dge.gob.pe/salasituacional/sala/index/salasit_dash/143). Mortality data (daily and cumulative) for COVID-19 was obtained using the Health Situation Dashboard: COVID-19 Perú (https://covid19.minsa.gob.pe/sala_situacional.asp).

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Authors’ contributions

CJTH conceived the study. AZVC and PKRG collected the data independently, CMM and CJTH performed the cross-validation of the datasets and the quality control. All authors discussed the results, drafted the first manuscript, critically read and revised the manuscript, and gave their final approval for publication.

Declaration of competing interest

The authors declare that they have no competing interests.

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