



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.

Facultad de Ciencias y Filosofía (JA, FCV) and Instituto de Medicina Tropical Alexander von Humboldt (MM, TJO), Universidad Peruana Cayetano Heredia, Lima 15102, Peru

- 1 Chauvin L. Peruvian COVID-19 vaccine scandal spreads. *Lancet* 2021; **397**: 783.

## Venezuela is collapsing without COVID-19 vaccines

Once considered a rich oil-producing country, Venezuela is confronting a rapidly increasing COVID-19 epidemic that adds to a complex humanitarian crisis that has been affecting the country since 2016.<sup>1</sup> The health-care system has collapsed and is incapable of responding to the ever-increasing number of patients who require hospitalisation. Health-care personnel, including doctors, nurses, and other first-line health staff, have been substantially affected by the epidemic, leading to the highest lethality reported in the Americas.<sup>2</sup> A desperate population is resorting to self-medication with unproven therapies, including the officially promoted so-called miraculous drops, a natural product that promises to be an infallible preventive and cure for the disease.<sup>3</sup>

While many other countries in the Latin American region negotiated, well in advance, for the procurement of vaccines and are already implementing vaccination programmes, the Launch and Scale Speedometer shows that Venezuela did not. To our knowledge, Venezuela does not have a known national COVID-19 vaccine plan, and the supply of vaccines is spasmodic, insufficient, and unplanned. On Feb 18, 2021, 200 000 Sputnik V vaccines were received with great fanfare, followed by a donation on March 11, 2021, from China of 500 000 doses of the Sinopharm vaccine, plus an additional batch of 50 000 doses of the Sputnik V vaccine that was received

on April 15, 2021. On March 22, 2021, Venezuelans were informed that additional batches of vaccines had been received: two Cuban vaccine candidates (30 000 doses each of Soberana-2 and Abdala, which are undergoing clinical trials in Cuba) and one from Russia (1000 doses of EpiVacCorona).<sup>4</sup> Although the Venezuelan Government announced the purchase of an additional 10 million doses of the Sputnik V vaccine on Dec 29, 2020, that purchase has not materialised. The number of doses that have arrived so far in Venezuela is insignificant compared with the need to vaccinate 15 million people, or 70% of the adult population in the country. No official information is available on the number of vaccine doses administered thus far, but we believe it is less than 200 000, with very few used to protect health-care personnel.

Venezuela's National Academy of Medicine is supporting ongoing efforts to bring vaccines to Venezuela via the COVID-19 Vaccine Global Access (COVAX) Facility, and other alternatives, to ensure that Venezuelans are not denied their human right to health and equitable access to safe and effective COVID-19 vaccines that are prequalified by WHO. International collaboration and cooperation is urgently needed to avoid a rapidly increasing humanitarian catastrophe in Venezuela.

We declare no competing interests.

**Enrique S López Loyo, Marino J González, \*José Esparza jose.esparza5@live.com**

Academia Nacional de Medicina, Caracas 1012, Venezuela

- 1 Page KR, Doocy S, Reyna Ganteaume F, Castro JS, Spiegel P, Beyrer C. Venezuela's public health crisis: a regional emergency. *Lancet* 2019; **393**: 1254–60.
- 2 Osio Cabrices R. The pandemic's brutal toll on Venezuelan doctors and nurses. 2021. <https://www.caracaschronicles.com/2021/04/02/the-pandemics-brutal-toll-on-venezuelan-doctors-and-nurses/> (accessed April 8, 2021).

- 3 McKenzie H. A miracle cure for COVID-19? We've heard that one before. 2021. <https://www.biospace.com/article/a-miracle-cure-for-covid-19-we-ve-heard-that-one-before/> (accessed April 8, 2021).
- 4 Feliciano D. Venezuela will begin to apply Cuban vaccine Abdala, without customary trials or regulatory approval. 2021. <https://riotimesonline.com/brazil-news/mercosur/venezuela/venezuelan-regime-will-begin-to-apply-in-july-the-cuban-vaccine-abdala-which-has-not-completed-the-trials-and-has-not-been-approved/> (accessed April 8, 2021).

## Long-term effects of COVID-19 on kidney function

We read with interest the long-term follow-up data from hospitalised patients with COVID-19 study by Chaolin Huang and colleagues.<sup>1</sup> The investigators report that 107 (13%) of 822 study participants with an estimated glomerular filtration rate (eGFR; calculated with the Chronic Kidney Disease Epidemiology Collaboration equation<sup>2</sup>) of 90 mL/min per 1.73 m<sup>2</sup> or more and no acute kidney injury during the acute phase had an eGFR of less than 90 mL/min per 1.73 m<sup>2</sup> at follow-up. Huang and colleagues interpret this observation as persistent renal dysfunction. A persistent and potentially progressive reduction in eGFR in the absence of acute kidney injury at the time of acute infection would indeed have important implications for COVID-19 follow-up surveillance. However, we want to point out that an alternative explanation is possible. eGFR is calculated on the basis of serum creatinine values, which undergo small fluctuations over time as a result of shifts in hydration and other factors.<sup>3</sup> Such fluctuations will stochastically place some individuals with normal GFR in the eGFR group of 90 mL/min per 1.73 m<sup>2</sup> or more during acute disease and in the eGFR group of less than 90 mL/min per 1.73 m<sup>2</sup> at follow-up, which is not necessarily a sign of worsening kidney function. Huang and colleagues show