



Published Online
September 29, 2020
[https://doi.org/10.1016/S0140-6736\(20\)32034-1](https://doi.org/10.1016/S0140-6736(20)32034-1)

list COVID-19 as the underlying cause of death, with the most immediate cause of death (eg, respiratory failure) listed first.² Because this method might overestimate COVID-19-related deaths, we reported all-cause mortality.

We share Moris and colleagues' concerns regarding the potential increase of cancer mortality caused by delays in cancer screening, diagnosis, and care delivery because of severe acute respiratory syndrome coronavirus 2—a concern already borne out in some early analyses.³ The prospect of widening existing racial and socioeconomic disparities in cancer outcomes is of real concern and central to forthcoming analyses of our cohort.

Malek and colleagues discuss important limitations in applying the results to patients with haematological malignancies. The small number of patients with specific haematological malignancies in the CCC19 cohort required the broad categorisation with non-exclusive categories, resulting in apparent numerical discrepancies. Only 53 (26%) patients with haematological malignancies were in remission, limiting the conclusions in this subgroup (appendix). Subsequent studies have shown a high risk of severe COVID-19 outcomes for patients with haematological malignancies.^{4,5} Despite a larger sample size, these analyses still do not have the power to identify, at the granular level, associations between the clinical status of the haematological malignancy, therapeutic modalities, and outcomes. The CCC19 cohort now includes more than 900 patients with haematological malignancies, and further analyses are underway.

Regarding laboratory data, 449 (48%) patients presented with mild COVID-19, most of whom had no available baseline laboratory data. Additionally, our sample size only allowed the interrogation of the reported clinical variables (which were established a priori) in multivariable modelling. We agree that examining the independent prognostic value of laboratory parameters is vital; we will soon present a larger analysis

addressing this. Although we firmly support robust methods and highlight limitations, it is imperative to deliver timely and valuable information to the community.

NMK reports personal fees from G1 Therapeutics, Invitae, Beyond Spring, Spectrum, Bristol-Myers Squibb, Janssen, and Total Health. EW-B reports stock and other ownership interests by an immediate family member in Nektar, Immunomedics; and a consulting or advisory role in Astellas Scientific and Medical Affairs and Exelixis. PG reports consulting for AstraZeneca, Bayer, Bristol-Myers Squibb, Clovis Oncology, Driver, EMD Serono, Exelixis, Foundation Medicine, GlaxoSmithKline, Genentech, Genzyme, Heron Therapeutics, Janssen, Merck, Mirati Therapeutics, Pfizer, Roche, Seattle Genetics, and QED Therapeutics; participation in an educational programme for Bristol-Myers Squibb; and institutional research funding from AstraZeneca, Bavarian Nordic, Bayer, Bristol-Myers Squibb, Clovis Oncology, Debiopharm, Genentech, Immunomedics, Kure It Cancer Research, Merck, Mirati Therapeutics, Oncogenex, Pfizer, QED Therapeutics, and GlaxoSmithKline. JLW reports personal fees from Westat and International Business Machines Watson Health; and stock ownership in HemOnc.org. SMR declares no competing interests.

Nicole M Kuderer,
Elizabeth Wulff-Burchfield,
Samuel M Rubinstein, Petros Grivas,
*Jeremy L Warner
jeremy.warner@vumc.org

Advanced Cancer Research Group, Kirkland, WA, USA (NMK); University of Kansas Medical Center, Kansas City, KS, USA (EW-B); University of North Carolina, Lineberger Comprehensive Cancer Center, Chapel Hill, NC, USA (SMR); University of Washington, Fred Hutchinson Cancer Research Center, Seattle Cancer Care Alliance, Seattle, WA, USA (PG); and Vanderbilt University Medical Center, Nashville, TN 37232, USA (JLW)

- 1 Kuderer NM, Choueiri TK, Shah DP, et al. Clinical impact of COVID-19 on patients with cancer (CCC19): a cohort study. *Lancet* 2020; **395**: 1907–18.
- 2 Centers for Disease Control and Prevention. Guidance for certifying deaths due to coronavirus disease 2019 (COVID-19). April, 2020. <https://www.cdc.gov/nchs/data/nvss/vsrg/vsrg03-508.pdf> (accessed Aug 22, 2020).
- 3 London JW, Fazio-Eynullayeva E, Palchuk MB, Sankey P, McNair C. Effects of the COVID-19 pandemic on cancer-related patient encounters. *JCO Clin Cancer Inform* 2020; **4**: 657–65.
- 4 Williamson EJ, Walker AJ, Bhaskaran K, et al. OpenSAFELY: factors associated with COVID-19-related hospital death in the linked electronic health records of 17 million adult NHS patients. *medRxiv* 2020; **584**: 430–36 (preprint).
- 5 Passamonti F, Cattaneo C, Arcaini L, et al. Clinical characteristics and risk factors associated with COVID-19 severity in patients with haematological malignancies in Italy: a retrospective, multicentre, cohort study. *Lancet Haematol* 2020; **7**: e737–45.

Lockdown impact on COVID-19 epidemics in regions across metropolitan France

Lockdowns have been used by most European countries in response to the COVID-19 pandemic. In France, a national lockdown was implemented on March 17, 2020. Some have questioned the need for a nationwide implementation given that most hospital admissions were concentrated in two of 13 regions; others have even questioned the impact of the lockdown on severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) spread, arguing that the natural epidemic peak was about to be reached. Here we discuss the impact of lockdown on COVID-19 epidemics in regions across metropolitan France.

On March 17, 2020, daily hospital admissions were indeed highest in Grand-Est (5.3 per 100 000 inhabitants) and Île-de-France (3.6 per 100 000 inhabitants) regions. Yet a surge in COVID-19 hospital admissions was occurring at that time across all regions of metropolitan France, as depicted in the appendix. The COVID-19 epidemic spread from the eastern to the western parts of France, crossing the daily hospitalisation threshold of 1 per 100 000 inhabitants between March 10 (Grand-Est) and March 23, 2020 (Bretagne and Nouvelle-Aquitaine). Île-de-France (Paris region) experienced the highest rate of hospital admissions per day (10.0 per 100 000 inhabitants), and Bretagne the lowest (1.3 per 100 000 inhabitants). Regardless of the time the epidemic started in the region, and its scale, 12 of 13 regions experienced a peak in daily hospital admissions on average 11 days (range 8–14 days) after the lockdown was implemented. This figure corresponds to the mean duration between infection and hospital admission for the patients experiencing severe forms of disease.¹ Since the different

See Online for appendix

regions were at different stages of the pandemic at the time the lockdown was implemented, the synchrony in regional peaks strongly suggests that the lockdown, rather than the natural course of the epidemic, explains the peak in hospital admissions. Moreover, most regions were experiencing exponential growth in hospital admissions (appendix), such that saturation of local intensive care units might have occurred in those regions in the absence of any lockdown.

Lockdown therefore appears to have been successful not only in alleviating the burden on the intensive care units of the two most severely affected regions of France, but also in preventing uncontrolled epidemics in other regions. These simple observations support results from other studies which have estimated the impact of lockdown on SARS-CoV-2 spread to be strong.²⁻⁵ Enforcement of public health and social measures in combination with important testing, tracing, and isolating capacities will be critical in case of an epidemic rebound—to avoid re-introducing a lockdown—a situation for which the economic cost and broader impact on society are considerable.

We acknowledge financial support from the Investissement d'Avenir programme, the Laboratoire d'Excellence Integrative Biology of Emerging Infectious Diseases programme (grant ANR-10-LABX-62-IBEID), the INCEPTION project (PIA/ANR-16-CONV-0005), and the European Union's Horizon 2020 research and innovation programme under grant 101003589 (RECOVER). The funders had no role in the writing of this Correspondence. SC and AF are members of the French COVID19 Scientific Council of the French Ministry of Health. All other authors declare no competing interests.

*Simon Cauchemez, Cécile Tran Kiem, Juliette Paireau, Patrick Rolland, Arnaud Fontanet
simon.cauchemez@pasteur.fr

Mathematical Modelling of Infectious Diseases Unit, Institut Pasteur, UMR2000, CNRS, Paris 75015, France (SC, CT, JP); Collège Doctoral, Sorbonne Université, Paris, France (CTK); Santé Publique France, French National Public Health Agency, Saint-Maurice, France (JP, PR); Epidemiology of Emerging Diseases Unit, Institut Pasteur, Paris, France (AF); and PACRI unit, Conservatoire National des Arts et Métiers, Paris, France (AF)

- 1 Bi Q, Wu Y, Mei S, et al. Epidemiology and transmission of COVID-19 in 391 cases and 1286 of their close contacts in Shenzhen, China: a retrospective cohort study. *Lancet Infect Dis* 2020; **8**: 911–19.
- 2 Flaxman S, Mishra S, Gandy A, et al. Estimating the effects of non-pharmaceutical interventions on COVID-19 in Europe. *Nature* 2020; **584**: 257–61.
- 3 Salje H, Tran Kiem C, Lefrancq N, et al. Estimating the burden of SARS-CoV-2 in France. *Science* 2020; **369**: 208–11.
- 4 Dehning J, Zierenberg J, Spitzner FP, et al. Inferring change points in the spread of COVID-19 reveals the effectiveness of interventions. *Science* 2020; **369**: eabb9789.
- 5 Okell LC, Verity R, Watson OJ, et al. Have deaths from COVID-19 in Europe plateaued due to herd immunity? *Lancet* 2020; **395**: e110–11.

Is COVID-19 being used as a weapon against Indigenous Peoples in Brazil?

To corroborate the Editors¹ appeal for Indigenous Peoples' right to self-determination as fundamental to ensure their health, we wish to draw attention to the dire situation faced by Indigenous populations in the Amazon, and mainly in Brazil.

Since the conquest of the region by the Europeans, the history of the Amazon has been marked by epidemics that ravaged native populations. These calamities, recent or old, have left an indelible mark in the memory of communities: several Amerindian groups have been completely wiped out by exogenous diseases like measles and smallpox; others have barely survived, with mortality rates sometimes exceeding 98% (ie, worse than medieval plague and Spanish flu).² The arrival of the COVID-19 epidemic in Indigenous territories therefore revives painful memories and well justified fears.

Indigenous communities are not vulnerable in themselves; they have been made fragile by the legacy and persistence of colonial practices. In the Amazon, the COVID-19 pandemic has encountered a failing public health system. Worse still, in some communities, the transmission of severe acute respiratory syndrome

coronavirus 2 has started with health professionals infected and not tested before leaving for isolated localities.

Today, according to the Brazil's Indigenous People Articulation, more than 27 000 Indigenous people have been infected with COVID-19, of which 806 have died from the disease (situation as of Sept 15, 2020), giving a mortality rate of 3%. This pandemic already affects 146 different Indigenous groups across the country.³

On Aug 5, 2020, the Supreme Federal Court recognised the failure of the government of President Bolsonaro to deal with the effects of the epidemic on Indigenous communities.³ The latter was ordered to put in place an emergency plan for the benefit of the Indigenous populations, as well as to adopt the necessary measures to remove invaders from their territories (illegal miners and loggers are not only vectors of diseases, but also cause environmental destruction, in particular through mercury pollution).⁴ Faced with inaction from the Brazilian Government, some nations, such as the Paiteer Suruí and Parque Indígena do Xingu peoples, have placed themselves in voluntary isolation since March, 2020.

Only two solutions exist to ensure the survival of Indigenous peoples in the wake of this COVID-19 crisis. First, build public health policies in partnership with Indigenous peoples, and which are respectful of local perspectives on diseases and their treatments. And second, respect the right to self-determination recognised by the 2007 UN Declaration on the Rights of Indigenous Peoples. In the absence of these solutions, we will watch these Indigenous peoples die from afar.

We declare no competing interests.

*Philippe Charlier, Leandro Varison
philippe.charlier@quai-branly.fr

Department of Research and Higher Education, Musée du quai Branly-Jacques Chirac, Paris, France (PC, LV); and Laboratory Anthropology, Archaeology, Biology, Paris-Saclay University, UFR of Health Sciences, 78180 Montigny-Le Bretonneux, France (PC)

For Articulation of Indigenous Peoples of Brazil COVID-19 data see http://emergenciaindigena.apib.info/dados_covid19/



NurPhoto/Getty Images