



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.

private is so intricate that the divide starts to blur. Both subsystems are rather interdependent. Meeting the public interest while meeting private interests are interrelated dimensions of the contemporary social contract—profit does not, and must not, exist without creating some good to society. Although we disagree with health care being reduced to a mere commodity, the expansion of private services might bring ease to public services for those who need them the most. With services overburdened, care for public patients is sometimes provided by private facilities, as with examinations and medicines when in short supply. Some services benefit society at large, such as by producing and airing televised patient education or giving interviews of general interest. Another overall effect is an influence by analogy on public management, generally aiming at dynamisation and rational spending.

And, conversely, we need not forget the active participation of the public sector itself in privatisation, be it by reinforcing managerial practices or by generating a clientele for external providers. But, the social contract is there regardless.

Claiming that the social contract has been undone inevitably renders the private sector unaccountable for any eventual failure in meeting the public interest. That is not, and must not be, the case.

We declare no competing interests.

*Ricardo Ayala, Bernardo Alarcon
ricardoalexis.ayalavalenzuela@ugent.be

Department of Sociology, Ghent University, Ghent 9000, Belgium (RA); and Faculty of Law, University of Louvain, Louvain-la-Neuve, Belgium (BA)

- 1 Crispi F, Cherla A, Vivaldi EA, Mossialos E. Rebuilding the broken health contract in Chile. *Lancet* 2020; **395**: 1342.
- 2 Rhodes M. The future of European welfare: a new social contract? New York, NY: Springer, 2016.
- 3 Rosenfeld M. Contract and justice: the relation between classical contract law and social contract theory. *Iowa Law Review* 1985; **70**: 769–900.

Models for mortality require tailoring in the context of the COVID-19 pandemic

Amitava Banerjee and colleagues¹ present the estimated prevalence of serious underlying medical conditions indicative of susceptibility to severe COVID-19 and mortality in England.

Their results are useful for targeting prevention strategies towards people at a higher risk for severe outcomes, to forecast the demand on health systems, to avert the strain on acute care facilities, and for clinicians and their patients who are at a higher risk for severe disease to optimise control of their underlying conditions and adopt precautions for the prevention of COVID-19. Nonetheless, caution is merited in interpreting these results.

The authors assume an identical effect of COVID-19 on mortality, irrespective of the underlying medical conditions, although early data suggest otherwise.² As data emerge on the death rates by underlying conditions and the effect of multiple conditions, it will be important to re-parameterise mortality projections. Moreover, their model does not account for disparities in the prevalence of underlying medical conditions and mortality risk across sociodemographic groups. Data from several countries show that the COVID-19 pandemic is disproportionately affecting minorities and populations with a low income. Barriers related to employment, income, housing, and access to essential services exist, and might impede the adoption of crucial mitigation strategies, such as physical distancing. Mitigation strategies, though essential for controlling an epidemic and with clear benefits for all populations, might have greater collateral negative consequences for some people than others.³

A population health perspective that accounts for the broader determinants of health might help to guide clinical

and public health decisions to not exacerbate existing health and socio-demographic inequities.⁴

We declare no competing interests.

*Arielle Lasry, Roberta Horth
ftn9@cdc.gov

US Centers for Disease Control and Prevention, Atlanta, GA 30333, USA

- 1 Banerjee A, Pasea L, Harris S, et al. Estimating excess 1-year mortality associated with the COVID-19 pandemic according to underlying conditions and age: a population-based cohort study. *Lancet* 2020; **395**: 1715–25.
- 2 Jordan RE, Adab P, Cheng KK. Covid-19: risk factors for severe disease and death. *BMJ* 2020; **368**: m1198.
- 3 Armitage R, Nellums LB. Considering inequalities in the school closure response to COVID-19. *Lancet Glob Health* 2020; **8**: e644.
- 4 Silverstein M, Hsu HE, Bell A. Addressing social determinants to improve population health: the balance between clinical care and public health. *JAMA* 2019; **322**: 2379–80.

Authors' reply

We thank Arielle Lasry and Roberta Horth for their comments on our study¹ and agree that long-term mortality models, applicable to people with different underlying conditions, have an important ongoing role in the COVID-19 response, and that they require further development to include wider determinants of health.

A fundamental question to any patient with a condition would be, we believe: how have my chances of surviving 1 year changed as a result of the COVID-19 emergency? Clinicians and policy makers currently have no consistent way of answering this question; at best, current approaches provide risk estimates for one disease at a time. Lasry and Horth point out the potential benefits of answering this question, and our Article has provided a prototype for development.¹ A strength of our approach is that we estimated absolute risk in 5-year age bands; increasing age has now been established as the most important risk factor for severe or fatal COVID-19. For example, people aged 80 years or older have a 20 times increased risk compared with those aged 50–59 years.² We agree with Lasry and Horth that it is important to consider the health



Pool/Getty Images

service, societal, psychological, and economic consequences of the emergency; each of which might affect all-cause mortality more than any association with COVID-19.

Our approach of providing absolute risk information on people similar to a given patient across a range of diverse health conditions is novel and might have uses, irrespective of COVID-19; previous approaches to risk are focused on one or a small number of related diseases. We have shown the high prevalence of multimorbidity for cancer³ and cardiovascular diseases⁴ in relation to COVID-19 excess mortality.

The OurRisk.CoV calculator accompanying our Article explicitly allows the user to choose different relative risks for each condition. Although evidence is emerging of how the short-term (eg, 90 day) risks of the specific outcome of COVID-19 varies across approximately 50 underlying conditions,² there is still little information on how long-term (≥ 1 year), all-cause mortality has been affected in people with each condition.

OurRisk.CoV has received more than 1.3 million visits since its release on May 12, 2020 (660 000 unique users). Despite the calculator being only a prototype for researchers to explore data, we believe that its use, and user feedback, strongly supports the public need to understand risk, tailored to age, sex, and a much wider⁵ range of underlying conditions. The real challenge is not only estimating risk in a more granular way, as we have attempted to do, but also in communicating the concept of risk to populations and individuals.

We declare no competing interests.

***Amitava Banerjee, Laura Pasea, Spiros Denaxas, Bryan Williams, Harry Hemingway**
ami.banerjee@ucl.ac.uk

Institute of Health Informatics (AB, LP, SD, HH) and Institute of Cardiovascular Science (BW), University College London, London NW1 1DA, UK; University College London Hospitals NHS Trust, London, UK (AB, BW); Barts Health NHS Trust, The Royal London Hospital, London, UK (AB); Alan Turing Institute, London, UK (SD); and Health Data Research UK, London, UK (SD, HH)

- 1 Banerjee A, Pasea L, Harris S, et al. Estimating excess 1-year mortality associated with the COVID-19 pandemic according to underlying conditions and age: a population-based cohort study. *Lancet* 2020; **395**: 1715–25.
- 2 Williamson EJ, Walker AJ, Bhaskaran K, et al. Factors associated with COVID-19-related death using OpenSAFELY. *Nature* 2020; **584**: 430–36.
- 3 Lai AG, Pasea L, Banerjee A, et al. Estimating excess mortality in people with cancer and multimorbidity in the COVID-19 emergency. *medRxiv* 2020; published online June 1. <https://doi.org/10.1101/2020.05.27.20083287> (preprint).
- 4 Banerjee A, Chen S, Pasea L, et al. Excess deaths in people with cardiovascular diseases during the COVID-19 pandemic. *medRxiv* 2020; published online June 11. <https://doi.org/10.1101/2020.06.10.20127175> (preprint).
- 5 Kuan V, Denaxas S, Gonzalez-Izquierdo A, et al. A chronological map of 308 physical and mental health conditions from 4 million individuals in the English National Health Service. *Lancet Digital Health* 2019; **1**: e63–77.

Emergency department cardioversion of acute atrial fibrillation

Ian Stiell and colleagues¹ hypothesised that procainamide with eventual direct-current (DC) shock would be superior to immediate DC shock in patients with recent-onset atrial fibrillation at the emergency department, but this could not be proven in their study. By contrast, procainamide could enhance cardioversion in persistent atrial fibrillation, which is more resilient to DC shock than recent-onset paroxysmal atrial fibrillation.²

Likewise, the high effectiveness of DC shock in recent-onset atrial fibrillation precluded finding a difference between paddle positions, which is in contrast with results of a previous study in persistent atrial fibrillation.³

The authors argue that, compared with our delayed cardioversion approach,⁴ acute intervention is less burdensome for patients and the hospital because return visits are not needed. However, our strategy was associated with less cardioversions (30% vs virtually all patients), far fewer complications (1% vs 20%),

and all-in-all less time spent in the emergency department (2 h vs 7 h).

The fact that hospitals cannot offer 24/7 cardioversion services, as the authors maintain, forms an argument in favour of initial rate control with eventual delayed cardioversion, since it turns disruptive acute care into more efficient planned care, and it also relieves patients who report outside of office hours. All these reasons suggest a lower burden to patients and hospitals.

An important drawback of acute intervention is that it precludes many patients experiencing that their arrhythmia might terminate by itself, which could enhance their confidence, reduce anxiety, and stimulate self-management. Acute treatments might distract physicians' attention from atrial fibrillation requiring assessment of stroke risk, and treatment of underlying cardiovascular diseases and risk factors contributing to atrial fibrillation.⁵

HJGMC reports grants from Netherlands Cardiovascular Research Initiative (an initiative with support of the Dutch Heart Foundation) and CVON 2014-9 (reappraisal of atrial fibrillation: interaction between hypercoagulability, electrical remodeling, and vascular destabilisation in the progression of atrial fibrillation [RACE V]), unrelated to this Correspondence. All other authors declare no competing interests.

***Nikki A H A Pluymaekers, Dominik K Linz, Michiel Rienstra, Isabelle C van Gelder, Harry J G M Crijns**
nikki.pluymaekers@mumc.nl

Department of Cardiology and Cardiovascular Research Institute Maastricht, Maastricht University Medical Center, 6229HX Maastricht, Netherlands (NAHAP, DKL, HJGMC); and Department of Cardiology University of Groningen, Groningen, Netherlands (MR, ICvG)

- 1 Stiell IG, Sivilotti MLA, Taljaard M, et al. Electrical versus pharmacological cardioversion for emergency department patients with acute atrial fibrillation (RAFF2): a partial factorial randomised trial. *Lancet* 2020; **395**: 339–49.
- 2 Van Noord T, Van Gelder IC, Crijns HJ. How to enhance acute outcome of electrical cardioversion by drug therapy: importance of immediate reinitiation of atrial fibrillation. *J Cardiovasc Electrophysiol* 2002; **13**: 822–25.
- 3 Kirchhof P, Eckardt L, Loh P, et al. Anterior-posterior versus anterior-lateral electrode positions for external cardioversion of atrial fibrillation: a randomised trial. *Lancet* 2002; **360**: 1275–79.

For the online risk calculator prototype see <http://covid19-phenomics.org/PrototypeOurRiskCoV.htm>