

Meagan C Fitzpatrick,
Abhishek Pandey, Chad R Wells,
Pratha Sah, *Alison P Galvani
alison.galvani@yale.edu

Center for Vaccine Development and Global Health,
University of Maryland School of Medicine,
University of Maryland, Baltimore, MD, USA (MCF);
Center for Infectious Disease Modeling and Analysis,
Yale School of Public Health, Yale University,
New Haven, CT 06520, USA (MCF, AP, CRW, PS, APG)

- 1 Tromberg BJ, Schwetz TA, Pérez-Stable EJ, et al. Rapid scaling up of COVID-19 diagnostic testing in the United States—the NIH RADx Initiative. *N Engl J Med* 2020; **383**: 1071–77.
- 2 Office of the Commissioner. Emergency use authorization. 2020. <https://www.fda.gov/emergency-preparedness-and-response/mcm-legal-regulatory-and-policy-framework/emergency-use-authorization> (accessed Oct 20, 2020).
- 3 Abbott. Upping the ante on COVID-19 antigen testing. Aug 26, 2020. <https://www.abbott.com/corpsnewsroom/product-and-innovation/upping-the-ante-on-COVID-19-antigen-testing.html> (accessed Oct 14, 2020).
- 4 Miller TE, Garcia Beltran WF, Bard AZ, et al. Clinical sensitivity and interpretation of PCR and serological COVID-19 diagnostics for patients presenting to the hospital. *FASEB J* 2020; published online Aug 28. <https://doi.org/10.1096/fj.202001700RR>.
- 5 Moghadas SM, Fitzpatrick MC, Sah P, et al. The implications of silent transmission for the control of COVID-19 outbreaks. *Proc Natl Acad Sci U S A* 2020; **117**: 17513–15.

Reduced mortality in New Zealand during the COVID-19 pandemic

New Zealand has had low case rates, hospital admissions, and deaths from COVID-19.¹ Stringent public health interventions (eg, compulsory self-isolation following travel, early border closure, nationwide lockdown, and isolation of cases and close contacts) were instituted in week 12 of 2020 (ie, March 16–19, 2020). Combined with its geographical isolation, these interventions meant that New Zealand eliminated COVID-19 in week 24 (ie, June 8, 2020),¹ although there have been subsequent cases due to border incursions.

To investigate the temporal association between these public health measures and all-cause mortality, we compared weekly death rates from 2015 to 2020 (appendix p 1) using data

from Stats NZ Tātaraunga Aotearoa. Reported weekly all-cause mortality in 2020 was similar to mortality in 2015–19 until week 17 (ie, the fifth week of public health measures) when mortality fell below historical rates, a trend which is still evident at week 42. There were a total of 25 deaths from COVID-19 from the start of the pandemic in New Zealand to week 42.

Interpretation of these time trends is limited by an absence of data on specific causes of death, due to coding delays and coronial inquiries. However, several important observations can be made. First, according to data collated in *The Economist*, New Zealand's reduction in mortality contrasts with the international experience of excess mortality during the COVID-19 pandemic. Second, the reduction in deaths is substantive. Across weeks 13–42 (ie, during and after lockdown), the mean weekly death rate was 11% lower than in 2015–19 (123.4 deaths per million population vs 138.5 deaths per million population, $p < 0.0001$). The same pattern exists when compared with historical mortality rates from the longer period of 2011–19 (appendix p 2). Third, the reduction in all-cause mortality became apparent in week 17, after 5 weeks of lockdown, and remained below historical levels despite public health restrictions easing, during a period that is usually marked by an increase in all-cause mortality due to seasonal influenza and pneumonia. This continued reduction might be primarily due to the absence of an influenza epidemic in New Zealand in 2020 (appendix p 3), presumably because of public health measures that were introduced to stop the spread of COVID-19.²

However, alternative factors, such as fewer deaths from road traffic accidents, occupational causes, air pollution, and postsurgical complications, might also have had a role in the reduction of all-cause mortality,³ although these effects would often manifest during, rather than after, a

strict lockdown. Finally, potential late adverse effects on mortality, resulting from reduced access to health care, have not become apparent.

As the costs and benefits of strict public health measures are debated, New Zealand's low all-cause mortality during this period is a striking observation. Further research, including monitoring of all-cause and disease-specific mortality in different countries, is needed to better understand the direct effects of COVID-19 and the measures that can be taken to reduce its burden.

We declare no competing interests.

Stacey Kung, Marjan Doppen,
Melissa Black, Tom Hills, *Nethmi Kearns
nethmi.kearns@mrrinz.ac.nz

Medical Research Institute of New Zealand,
Wellington 6242, New Zealand (SK, MD, MB, TH,
NK); Auckland District Health Board, Auckland,
New Zealand (TH); Capital and Coast District Health
Board, Wellington, New Zealand (NK)

- 1 Baker MG, Wilson N, Anglemyer A. Successful elimination of COVID-19 transmission in New Zealand. *N Engl J Med* 2020; **383**: e56.
- 2 Hills T, Kearns N, Kearns C, Beasley R. Influenza control during the COVID-19 pandemic. *Lancet* 2020; **396**: 1633–34.
- 3 Wilson N, Mizdrak A, Summers J, Baker M. Weekly deaths declined in NZ's lockdown—but we still don't know exactly why. July 10, 2020. <https://blogs.otago.ac.nz/pubhealthexpert/2020/07/10/weekly-deaths-declined-in-nzs-lockdown-but-we-still-dont-know-exactly-why> (accessed Nov 9, 2020).

Legalisation of undocumented immigrants in the USA

In November, 2020, Joseph R Biden Junior was elected to become president of the USA. During his presidential campaign, Biden placed great emphasis on immigration and vowed to reverse many of the existing policies that were enacted under the leadership of President Donald Trump.

One of the major hallmarks of Biden's plan is to modernise the immigration system by ending family separation at the border, providing additional protections for refugees, and reinstating the Deferred Action for Childhood Arrivals programme.¹

For more on Stats NZ
Tātaraunga Aotearoa see
<https://www.stats.govt.nz/experimental/covid-19-data-portal>

For more on the data collated in
The Economist see
<https://www.economist.com/graphic-detail/2020/07/15/tracking-covid-19-excess-deaths-across-countries>



Published Online
December 14, 2020
[https://doi.org/10.1016/S0140-6736\(20\)32647-7](https://doi.org/10.1016/S0140-6736(20)32647-7)



Ryan Roadrick/Beiler/Shutterstock

See Online for appendix