



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.



## Reply to a commentary on Swedish policy analysis for Covid-19

Andrius Kavaliunas<sup>a,\*</sup>, Isis Lindfeldt<sup>b</sup>, Mattias Kylhstedt<sup>c</sup>

<sup>a</sup> Department of Clinical Neuroscience, Tomtebodavägen 18A:05, 171 77 Stockholm, Sweden

<sup>b</sup> Department of Sociology and Uppsala Antibiotic Center, Uppsala University, Uppsala, Sweden

<sup>c</sup> Synerigus RWE AB, Stockholm, Sweden

### To the editor,

We read the commentary [16] that raised some criticism to our previously published article [1] and to which we would like to respond. Also, using the opportunity, to once more clarify some typical misunderstandings in characterising the Swedish approach. Besides, we would like to remind that the aim of our article was to describe and analyse the case of Sweden and the Covid-19 pandemic using the data available by August 2020 (the time of publication), which was far too early for the definitive conclusions. Thus, we did not aim to provide a final verdict but instead described both what has worked rather well and what has not.

Firstly, the commentator makes his own misinterpretations and claims of what has been the Swedish strategy. As clearly outlined in our article [1] and set in the Pandemic preparedness plan [2], the country's main overarching aims are a) to reduce the mortality and the morbidity in the population, and b) to minimise various negative consequences for individuals and society. A distinctive feature of this approach is not a sole focus towards one disease but a sustainable perspective balancing other important objectives and maintaining the focus on physical and mental health, and on public health in general without sacrificing crucial infection control measures. The ambition is to find implementation strategies that reduce the transmission of Covid-19 and reach other important health goals that could last for a long time. For the commentator and interested readers we can also recommend to watch a short video where Dr. Johan Carlson, Director-General of the Public Health Agency, explains the strategy: <https://www.folkhalsomyndigheten.se/the-public-health-agency-of-sweden/communication-disease-control/covid-19/covid-19-the-swedish-strategy/>.

As elucidated by Dr. Carlson, the rationale has been based on evidence-based response, flexibility, close surveillance of the national and global situation, collaboration with the regional, national and international partners, consensus to avoid forced lockdown – based on tradition and law. As highlighted in our paper [1] and as reported by the Public Health Agency, the strategy rests in a close partnership between the government and the society based on a mutual trust giving the responsibility to individuals.

The commentator stresses the healthcare capacity aspect. In fact,

“flattening the curve” concept has been a major goal throughout the world with no exception in Sweden. However, as depicted by Grothe-Hammer and Roth [3], while the explicitly proclaimed norms assert that the anti-pandemic measures are aimed at keeping the number of infections below the maximum capacities of the national health systems, the implicit norms turn out to be significantly different, i.e. primarily about the number of coronavirus-related deaths. Such norm is not about protecting lives in general, but only about protecting people from dying with a coronavirus infection. This implicit norm is not tenable, because it implies that a death from the coronavirus is considered more important than a death from another infection or disease. We fully agree with Grothe-Hammer and Roth expressed call for an international public debate about how much protection against infectious and non-infectious diseases society should provide in general – not only against one particular disease. To add, Kraaijeveld argues that in fact an altruistic approach (no lockdown) is preferable on moral grounds [4]. Once more, our aim was to describe the response (with focus on healthcare) rather than to analyse all the possible aspects it can encompass (including ethical, juridical, social, etc.) as stated in our conclusions.

Secondly, we would like to remind that our aim was to focus on one country; we do, however, agree that comparisons are relevant and needed, but a simplistic approach towards the cumulative numbers does not make any science. For more insights, we can recommend a primary analysis by Juul et al [5], who show that all-cause mortality was largely unchanged in Norway and Sweden; the less pronounced excess deaths might be explained by mortality displacement. While the Nordic countries share many similarities, there are as well many nuanced differences one has to take into account, e.g., metropolitan area size, age structure of the populations, immigrant population, organisation of social care, etc.

Please appreciate we do present both what has worked rather well and what has not, and limited ability to implement protective measures in some elderly homes together with the vulnerability of migrants was highlighted. The importance of hand hygiene was underscored. Also, when formulating his point towards deaths as a result of the pandemic, the commentator should consider that rather a big proportion actually died (and dies) with Covid-19 rather than from Covid-19. E.g., in

\* Corresponding author:

E-mail address: [andrius.kavaliunas@ki.se](mailto:andrius.kavaliunas@ki.se) (A. Kavaliunas).

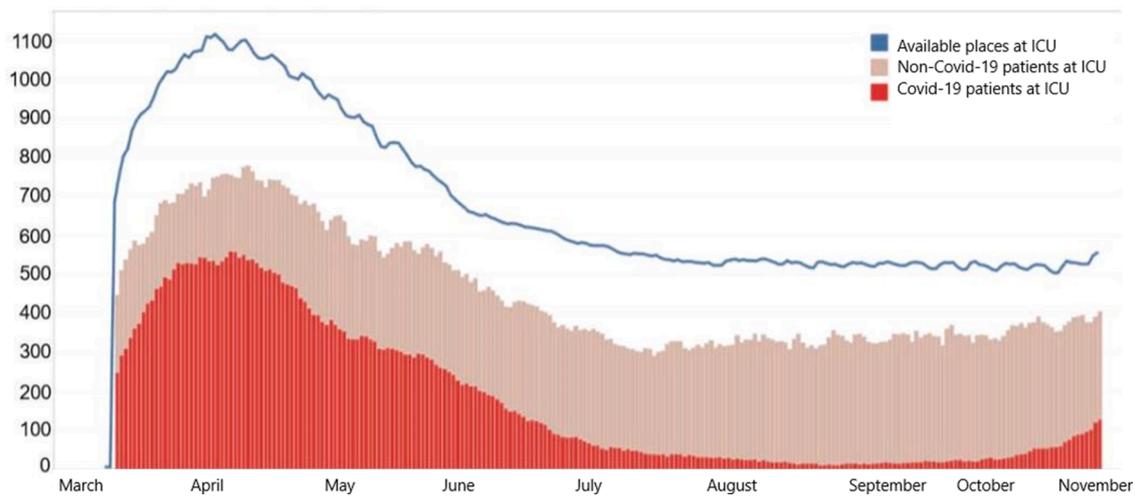


Fig. 1. ICU capacity in Sweden, March to November 2020 (From the National Board of Health and Welfare)

Östergötland region only 15% of those who died in nursing homes had it as a primary cause of death [6].

Thirdly, regarding herd immunity, the commentator erroneously claims that our article by presenting several studies suggests parts of the population becoming immune. While it is true that we present several modelling studies conducted by the time of writing, and while it is true that herd immunity is a real phenomenon [7,8], in our article there is no suggestion about large parts of the population becoming immune. We do not speculate about herd immunity whatsoever besides quoting the studies and the Public Health Agency that has repeatedly denied it to be a part of the strategy. To add, these studies were put in a subsection “Predictions, modelling, and other studies” alongside with other studies on the instantaneous reproduction number, the infection fatality rate, occupational risks, T cell immunity – investigations that provide more contextual information about the pandemic response in the country rather than the strategy. Or would the commentator rather choose to neglect a study about herd immunity just because it has become a toxic phrase?

Referring to the antibody studies as the only empirical evidence to pinpoint immunity level is yet another common biased perspective. While it is true that sero-prevalence studies can provide valuable insights, it’s rather a piece than a full picture. Much depends on the right timing of testing and representativeness. Even so, it is already well established that T-cell immunity plays a major role when fighting the viruses, not to mention the more complex mechanisms of immunological memory [9,10] – far more important aspects when discussing immunity level in the population. In fact, antibody studies provide with rather different kind of information, e.g., which groups in the population were more or less affected. In Sweden, the age-based sero-prevalence trends suggest that in the first wave of Covid-19, the elderly were relatively less likely to have been exposed – which was the aim – compared to, e.g. Spain, likely in part attributable to a combination of different prevention and mitigation strategies and underlying contact patterns by age [11].

Fourthly, regarding the evidence for “flattening the curve”, we agree the article could be supplemented with an additional data and a respective figure. As indicated, data were collated from various sources – published scientific studies, pre- print material, agency reports, media communication, public surveys, etc. Thus, the conclusion rests in what was available at the time of writing. To add, the authors were closely following the situation updates, particularly the press conferences where the ICU capacity was among the most important aspects to announce. We also provided with two examples of ICU data from two different stages of the pandemic: spring, 14 May (the number of ICUs available was 1003, of them 423 (33%) being unused and ready for use if needed), and summer, 13 August (the number of ICU beds decreased to pre-

pandemic level, i.e., to 527, of them 321 occupied (39% being available if needed), of them 30 with Covid-19). The National Board of Health and Welfare kindly provided a more comprehensive graph (Fig. 1).

The commentator also questions the conclusion with a strange example about the second wave. In our article it is very clearly stated that all the data described was taken up to week 33 (9–15 August) 2020; the article itself was published 29 August 2020. Thus, it would very strange if we were describing the events that have not happened yet. While various forecasts and predictions can also be called science, that was not the aim of our article. To add, at the time of writing the conclusion in question still holds (Fig. 1).

Lastly, regarding the World Health Organisation (WHO) and Sweden – we are not aware of any WHO statement that would specifically criticize Sweden and the commentator does not provide any reference to that. Instead, he references two articles of whom only one specifically mentions Sweden. Regarding testing and tracing discussed in it – while it is true this has been emphasised by the WHO, it has never stated when and how to do it, as it is for a country to decide on the exact implementation details. Sweden followed the priorities set in the Preparedness plan [2] according to the classic pandemic phases: early, pandemic, and late or inter-pandemic. In early phase testing and tracing was done until it was not feasible anymore and the widespread transmission in the society was stated; with that moving into the pandemic phase, characterised by a sharp rise in cases. During the pandemic phase different priorities and resource re-allocation has to be considered. Once the country moved into the late stage, the broad testing was implemented and contact tracing reinstated. Sweden stuck to the principles laid out in its Preparedness plan – something other countries may consider as well, since it is a tool created specifically to guide the response. Please also note that lack of testing equipment was an issue for many other countries at the start of the outbreak [12]. Regarding the use of face masks – specifically in health care settings, as brought by the commentator – throughout the pandemic, healthcare personnel have used facemasks when seeing patients with suspected or verified Covid-19. Staff working at elderly care and nursing facilities began using facemasks in April to May, when Covid-19 fatalities in the elderly care homes became known [12].

In conclusion, by raising the discussed points the commentator is simply following the popular media narratives (e.g., regarding herd immunity, not following WHO recommendations, the Swedish approach is failing, etc.) and misinformation towards Sweden, as depicted by Irwin [13]. The commentator also stresses deontological aspect – we can just remind one of the principal precepts of bioethics of which the commentator and many other seem to have forgotten – *primum non*

*nocere* (in Latin). Application of the physicians' oath "first do no harm" to public health means that positive outcomes of public health interventions need to outweigh any negative effects. Therefore, the task for public health is not simply to consider the lives that may be saved by policy efforts to limit viral spread, but more importantly, to consider the total number of lives saved and lost as a result of the epidemic and responses to it, and thus the negative effects of interventions (such as lockdown) have to be considered systematically [14]. For more information, please see: <https://collateralglobal.org/>.

Finally, evidence-based medicine has many connotations including critical self-evaluation, production of evidence through research and scientific review and or the ability to scrutinize presented evidence for its validity and clinical applicability [15]. For example, there is ample of evidence for the importance of hand hygiene, keeping the physical distance, staying at home if feeling unwell – something repeatedly emphasised as the main measures individual can take to help stop the virus.

## References

- [1] Kavaliunas A, Ocaya P, Mumper J, Lindfeldt I, Kyhlstedt M. Swedish policy analysis for Covid-19. *Health Policy Technol* 2020 Dec 1;9(4):598–612.
- [2] Pandemiberedskap. Hur Vi Förbereder Oss [Internet]. Folkhälsomyndigheten; 2019. Available from: <https://www.folkhalsomyndigheten.se/contentassets/b6cce03c4d0e4e7ca3c9841bd96e6b3a/pandemiberedskap-hur-vi-forbereder-oss-19074-1.pdf>.
- [3] Grothe-Hammer M, Roth S. Dying is normal, dying with the coronavirus is not: a sociological analysis of the implicit norms behind the criticism of Swedish 'Exceptionalism'. *Eur Soc* 2020 Oct 6;0(0):1–16.
- [4] Kraaijeveld SR. COVID-19: against a lockdown approach. *Asian Bioeth Rev* 2021; 13:195–212. <https://doi.org/10.1007/s41649-020-00154-y>.
- [5] Juul FE, Jodal HC, Barua I, Refsum E, Olsvik Ø, Helsing LM, et al. Mortality in Norway and Sweden before and after the Covid-19 outbreak: a cohort study. *medRxiv*. 2020 Nov 13;2020.11.11.20229708.
- [6] TT. Äldre med covid-19 dog ofta av andra orsaker. *SVT Nyheter*; 2020 Aug 17 [Internet][cited 2020 Dec 13]; Available from: <https://www.svt.se/nyheter/lokalt/ost/alldre-med-covid-19-dog-ofta-av-andra-orsaker>.
- [7] Britton T, Ball F, Trapman P. A mathematical model reveals the influence of population heterogeneity on herd immunity to SARS-CoV-2. *Science* 2020 Aug 14; 369(6505):846–9.
- [8] Medley GF. Herd immunity confusion. *The Lancet* 2020 Nov 21;396(10263): 1634–5.
- [9] Sekine T, Perez-Potti A, Rivera-Ballesteros O, Strålin K, Gorin J-B, Olsson A, et al. Robust T Cell Immunity in Convalescent individuals with asymptomatic or Mild COVID-19. *Cell*. 2020 Oct 1;183(1):158–68. e14.
- [10] Nelde A, Bilich T, Heitmann JS, Maringer Y, Salih HR, Roerden M, et al. SARS-CoV-2-derived peptides define heterologous and COVID-19-induced T cell recognition. *Nat Immunol* 2020 Sep 30:1–12.
- [11] Baral S, Chandler R, Prieto RG, Gupta S, Mishra S, Kulldorff M. Leveraging epidemiological principles to evaluate Sweden's COVID-19 response. *Ann Epidemiol* 2021;54:21–6. <https://doi.org/10.1016/j.annepidem.2020.11.005>.
- [12] Ludvigsson JF. The first eight months of Sweden's COVID-19 strategy and the key actions and actors that were involved. *Acta Paediatr* 2020;109(12):2459–71.
- [13] Irwin RE. Misinformation and de-contextualization: international media reporting on Sweden and COVID-19. *Glob Health* 2020 Jul 13;16(1):62.
- [14] Bavli I, Sutton B, Galea S. Harms of public health interventions against covid-19 must not be ignored. *BMJ* 2020 Nov 2:m4074.
- [15] Timmermans S, Kolker ES. Evidence-based medicine and the reconfiguration of medical knowledge. *J Health Soc Behav* 2004;45:177–93.
- [16] Nilson Finn. A biased analysis of the Swedish management of Covid-19. *Health Policy and Technology* 2021. <https://doi.org/10.1016/j.hlpt.2021.100542>. In press.