



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.



Contents lists available at ScienceDirect

Public Health

journal homepage: www.elsevier.com/locate/puhe

Letter to the Editor

As the pandemic evolves, so must global monitoring of COVID-19

Since the start of the COVID-19 pandemic, the UK Health Security Agency (UKHSA, formerly Public Health England) has collated country-specific data from official sources for use across the UK government. The idea is that by monitoring these data one may identify concerning trends or may tease out statistical signals of epidemiological importance, a concept also known as aberration detection.¹ These data were shared across the government to enable those working on the COVID-19 public health response to understand the spread and impact of the pandemic internationally and to facilitate public health decisions nationally. In the initial stages of the pandemic, surveillance of newly diagnosed cases of COVID-19 was the metric of choice when assessing the likely extent of the pandemic within countries. With the introduction of mass testing strategies in many countries, monitoring incidence, testing rates and test positivity became more reflective of a country's current situation. More recently, in countries with access to new treatment strategies and high vaccination, high incidence rates are no longer necessarily reflective of the burden COVID-19 disease places on healthcare systems, morbidity and mortality within countries.² Furthermore, as national policies in countries shift to a longer-term approach for COVID-19, it is likely that this will lead to reductions in testing, which will mean that reported incidence will become less informative as a measure of the true SAR-CoV-2 incidence in a country. Therefore, at this stage of the pandemic, we argue herein that it is more important to be able to accurately monitor global rates of hospitalisations, ICU admissions and fatalities than incidence and testing rates to determine countries with a higher COVID-19 burden.

Given that most countries report regular data on COVID-19 deaths, surveillance of fatality rates allows for within-country assessment of the impact the pandemic has had on the population over time. However, comparison of death rates across countries is complicated by discrepancies in the definitions of COVID-19 fatalities globally.³ Others have proposed that all-cause mortality and excess mortality provide a better reflection of the impact the pandemic has had on public health.⁴ However, a limitation of excess mortality for ongoing surveillance is the delay in the publication of all-cause deaths, which can be up to a year in some countries.⁵

Monitoring of admissions to hospital and ICU offers a more timely approach to monitoring the impact of COVID-19 disease on severe outcomes. World Health Organization guidance on maintaining essential health services during the COVID-19 pandemic recommends screening of all patients on arrival at all health service sites.⁶ Therefore where testing for COVID-19 is limited, hospital data may offer a more appropriate reflection of the current in-country situation than incidence. Hospitalisation metrics may also mitigate issues with differences in testing rates, access to

treatment and vaccination rates across countries. Nevertheless, challenges in the interpretation and availability of data remain. Countries like the UK do not include nosocomial COVID-19 infections in their data;⁷ however, it is still very difficult to exclude chance infections that come to hospital for other causes. Not all countries report hospitalisation data. Among those who do, there is significant variation in their approach to hospitalisation, for example, Japan's policy is to encourage hospitalisation of individuals who test positive regardless of the severity of their disease.⁸ Furthermore, hospitalisation policies have changed over time. Thailand's initial response was to hospitalise most symptomatic cases; however, that changed as hospitals became too busy.⁹ The availability of treatment for COVID-19 also complicates the interpretation of these metrics, particularly where official sources only report admittance to critical care.

The evolution of SARS-CoV-2 is inevitable and assessing the impact of new variants will continue to be the most challenging factor in pandemic management. As countries scale back their COVID-19 response, surveillance is likely to shift from monitoring infections in the wider population to focussing on healthcare settings. Hence a concerted effort should be made to standardise definitions of COVID-19 fatalities and for clearer reporting of patients in hospital due to COVID-19 (rather than with COVID-19), as, for example, is being done in Denmark.¹⁰

Despite the above caveats, global monitoring of hospital, ICU admissions and fatalities will remain crucial for assessing the severity of future variants and consequent public health management. To ensure this is possible, consideration should be given to expanding reporting of these metrics for national and international reporting. Finally, to make these data truly useful for surveillance, background knowledge on public health will remain critical to ensure appropriate interpretation and use of these data.

Author statements

Funding

All authors were employed by the UK Health Security Agency at the time this piece was written. No other funding source was used.

Disclaimer

The views expressed in this article are those of the authors and are not necessarily those of the UK Health Security Agency.

Competing interests

None.

<https://doi.org/10.1016/j.puhe.2022.06.005>

0033-3506/Crown Copyright © 2022 Published by Elsevier Ltd on behalf of The Royal Society for Public Health. All rights reserved.

Please cite this article as: A. Castanon, M. Tillo, D. Mesher *et al.*, As the pandemic evolves, so must global monitoring of COVID-19, *Public Health*, <https://doi.org/10.1016/j.puhe.2022.06.005>

References

1. Chiolero A, Buckridge D. Glossary for public health surveillance in the age of data science. *J Epidemiol Community Health* 2020;**74**(7):612–6.
2. Tancredi S, Anker D, Rosella L, Chiolero A. Elimination of Covid-19: beware of surveillance bias. *BMJ* 2021;**374**:n2126.
3. Karanikolos M, McKee M. How comparable is COVID-19 mortality across countries? *Eurohealth* 2020;**26**(2):45–50.
4. Collaborators C-EM. Estimating excess mortality due to the COVID-19 pandemic: a systematic analysis of COVID-19-related mortality, 2020–21. *Lancet* 2022;**399**(10334):1513–36.
5. Our World in Data. Estimated cumulative excess deaths during COVID-19 2022 [Available from: <https://ourworldindata.org/grapher/excess-deaths-cumulative-economist?time=2021-02-1..latest&country=CHN-PAK-RUS-USA-BRA-IDN>].
6. Maintaining essential health services. *Operational guidance for the COVID-19 context* [cited 25 March 2022]. Available from: https://www.who.int/publications/i/item/WHO-2019-nCoV-essential_health_services-2020.2; 2020.
7. UK Health Security Agency. Metrics documentation. New admissions 2022 [Available from: <https://coronavirus.data.gov.uk/metrics/doc/newAdmissions>].
8. Tokumoto A, Akaba H, Oshitani H, Jindai K, Wada K, T I, et al. *COVID-19 health system response monitor*. 2021. Japan.
9. Subhabhong Rarueysong. Thai health authorities plan new approach for coping with severe COVID-19 outbreak 2021 [Available from: <https://thainews.prd.go.th/en/news/detail/TCATG210626111954404>].
10. Statens Serum Institut. *Ugentlige tendenser: Covid-19 og andre luftvejsinfektioner*. 2022 [42]. Available from: <https://files.ssi.dk/covid19/tendensrapport/rapport/ugentlige-tendenser-covid19-andre-luftvejs-uge6-2022-8d2k>.

A. Castanon*, M. Tillo, D. Mesher, K. Russell
International Cell, COVID-19 Incidence Response, UK Health Security Agency

* Corresponding author. 61 Colindale Ave, London NW9 5EQ,
 United Kingdom.
 E-mail address: alex.castanon@phe.gov.uk (A. Castanon).

9 June 2022
 Available online xxx