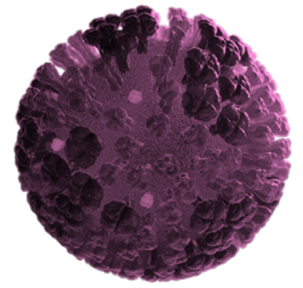




# InFluNews



The monthly newsletter from the Global Influenza Initiative (GII)

APRIL 2021 | ISSUE 2

Welcome to the second issue of the InFluNews. This edition is guest edited by Ben Cowling.

The first issue of InFluNews (March 2021) examined the worldwide imposition of non-pharmaceutical interventions (NPIs) to curtail transmission of COVID-19. These measures have resulted in a marked reduction in influenza virus circulation with a resultant fall in available virus samples for characterisation. The World Health Organization issued recommendations for the 2021–22 influenza vaccine strains for the northern hemisphere (NH) based on a much smaller sample base than in previous seasons. The consequences of low influenza circulation are currently difficult to predict, raising the possibility of unusual or more severe influenza epidemics in future seasons.

This issue of InFluNews explores the potential impact of NPIs on future influenza seasons and vaccination campaigns. The focus, where feasible, will be on the southern hemisphere (SH), where the next influenza season is imminent.

## How have NPIs and their implementation varied across geographical regions?

In many countries, NPIs such as social distancing, face coverings and bans on nationwide and international travel have limited the global circulation of respiratory viruses, including SARS-CoV-2 and influenza viruses.

To project what may happen when NPIs are lifted, we need to consider how they have been implemented in different geographical regions. These measures have varied widely between countries, which may influence their potential impact on future influenza seasons:

- Type and stringency of measures
- Level of compliance among the local population
- Rigour of enforcement exercised by local authorities and national governments

Influenza virus image from CDC/Douglas Jordan.

## FOCUS THIS MONTH

### LIFTING COVID-19 NPIs

What will happen to the circulation of influenza once NPIs are lifted?

### NEXT INFLUENZA SEASON IN THE SOUTHERN HEMISPHERE

What implications does this have for seasonal influenza vaccination programmes?

## NPI variation between countries

In the SH, both Australia and New Zealand acted swiftly to introduce NPIs at an early stage during the COVID-19 pandemic. Both countries have taken steps to ensure compliance, and the most recent influenza season in these countries was substantially reduced.<sup>1</sup> While similar measures have been introduced, for example, by Taiwan, Japan and Qatar, the latter reported a ‘dramatic decrease’ in cases of influenza A, while a small drop in influenza B cases was seen which was not statistically significant.<sup>2</sup> Conversely, in Chile and Peru, where NPI measures were much less strict, influenza levels have also been low over the winter season.<sup>1</sup>

## Latest influenza detections (29 March 2021)<sup>3</sup>

WHO reporting currently indicates lower global levels of influenza activity than expected for the time of year, with influenza B accounting for most detections:

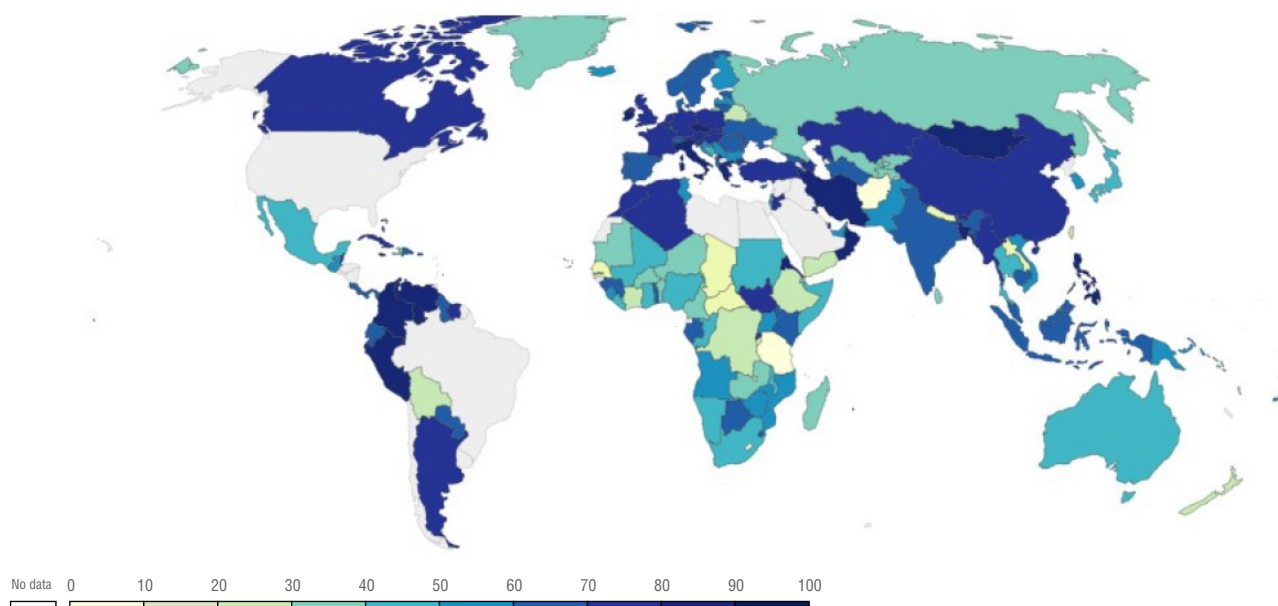
- SH temperate zone: Inter-seasonal levels of influenza activity
- NH temperate zone: Below baseline, with sporadic detections of influenza A and B in some countries
- Caribbean and Central America: No detections reported
- Tropical South America: No influenza
- Tropical Africa: Some reporting in recent weeks from countries in West and East Africa

- Southern Asia: Sporadic detections in India and Nepal
- Southeast Asia: Influenza A(H3N2) detections continue to be reported in Laos

## Stringency index

The map indicates the ‘COVID-19 stringency index’ for individual countries around the world, as represented by the Oxford COVID-19 Government Response Tracker (OxCGRT) developed by the University of Oxford.<sup>4</sup> Information is systematically collected on several common policy responses to the COVID-19 pandemic taken by governments. Data from 20 indicators, including school and workplace closures and travel bans, are aggregated into a value between 1 and 100 (where 100 is the strictest). The tracker now has data from more than 180 countries and is updated regularly. It is also used to calculate a Risk of Openness Index, intended to help countries decide when to ‘open up’ or ‘close down’.<sup>4</sup>

Baker *et al.* identified meteorological factors, such as humidity, which may play a role in the transmission of influenza.<sup>5</sup> This could have an effect in determining airborne droplet size and the amount of time the virus spends in the air. An interplay between NPI measures and climate factors may also influence influenza season timing and severity.<sup>5</sup>



This chart from Our World in Data, is licensed under [Creative Commons](https://creativecommons.org/licenses/by/4.0/). © Blavatnik School of Government, University of Oxford. COVID-19 government response tracker. Available at: <https://www.bsg.ox.ac.uk/research/research-projects/covid-19-government-response-tracker>. Distributed under the terms of a CC BY license: <https://creativecommons.org/licenses/by/4.0/>. COVID-19 stringency index, April 12th 2021. Note: where policies vary at the sub-national level, the index shows the response level of the strictest sub-region.<sup>4</sup>

## What impact might the implementation of NPIs have on future influenza seasons?

There is evidence from a range of sources to suggest that a mild influenza season in one year can be followed by a more severe epidemic in the following influenza season:

- Researchers investigating the effect of warmer winters in recent years in the US have shown that influenza epidemic severity and time of onset are significantly associated with average winter temperature during the previous season<sup>6</sup>
- Others have used epidemiological modelling to examine the effects of NPIs imposed during the COVID-19 pandemic on the risk of future outbreaks of respiratory diseases.<sup>7</sup> Baker *et al.* showed that earlier and larger outbreaks of influenza may occur following a period of extended NPIs due to a build-up of susceptibility in the population<sup>7</sup>
- Studies on the dynamics of previous influenza pandemics are in line with these findings, demonstrating that the ratio of susceptible:immune individuals after one pandemic wave determines the potential and size of the next.<sup>\*8</sup> Therefore, when influenza virus circulates at a low level, fewer people will acquire immunity as a result of natural infection, leaving the population more susceptible to a future outbreak of infection

## How might future influenza seasons be affected by the continued circulation of SARS-CoV-2?

Available evidence suggests that viral competition between SARS-CoV-2 and influenza is likely to be won by SARS-CoV-2. Co-infection in humans appears to be relatively rare, perhaps because of the general immune response triggered by infection.<sup>1</sup> Early evidence from China indicated that patients infected with COVID-19 have a low chance of developing other respiratory infections. Moreover, it was recently reported that patients with SARS-CoV-2 and influenza co-infection generally represent a small minority. Interestingly, rates varied across the US.<sup>2</sup>

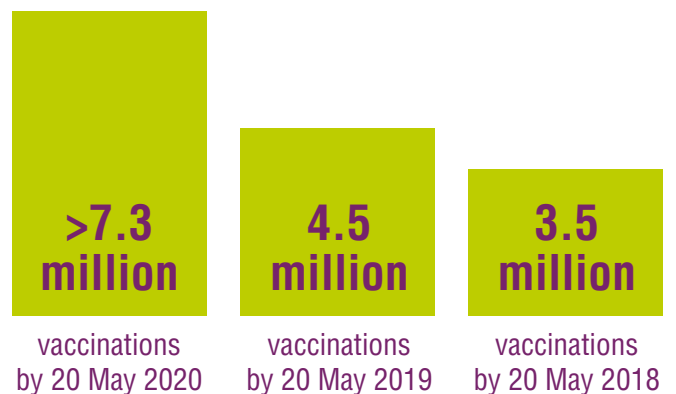
\*Some caution should be exercised when comparing future influenza seasons to those of the past. While earlier seasons have shown similar levels of virus circulation, the 2019–2020 season (at least in the NH) featured an early peak in influenza B prevalence not seen in previous seasons.<sup>9</sup>

## What implications does this have for seasonal influenza vaccination programmes?

The precise dynamics of future influenza outbreaks remain uncertain because they depend on several factors including the transmissibility and evolutionary dynamics of circulating strains.<sup>7</sup> A more severe influenza season could arise if natural immunity from exposure to the virus and vaccination coverage are reduced and/or more virulent strains develop.

Influenza vaccination can reduce the potential risk of earlier and more severe influenza outbreaks in the future and avoid prolonging and exacerbating the burden on depleted health care systems. Increased influenza vaccination rates could also mitigate the loss of population immunity in the past 12 months due to the absence of natural influenza virus infections.

With widespread introduction and large-scale uptake of COVID-19 vaccinations, it may be that influenza vaccination uptake receives a ‘knock-on’ boost in acceptability. For example, influenza vaccination uptake appears to have increased in Australia:<sup>10</sup>



Demand in Australia may have been boosted by widespread public health and media communications highlighting the potential risk of dual infection with influenza and COVID-19 and the need for vaccination.<sup>11</sup> The eligibility criteria for influenza vaccination were also expanded to include a range of care and nursing workers. A public education campaign and increased vaccine production enabled the duration of the vaccination programme to be extended.<sup>11</sup>

Conversely, in some countries in the NH influenza vaccination was recommended by health authorities during the 2020–2021 winter season, but influenza virus circulation remained low during the ongoing COVID-19 pandemic. This may lead to the misconception that influenza vaccination is not necessary and have a negative impact on vaccine uptake in future influenza seasons.

## COVID-19 situation updates – April 2021

In the past year, more than 3 million deaths have been recorded globally from COVID-19, and the situation could have been far worse without prompt public health actions. However, the social distancing measures and movement restrictions that have suppressed COVID-19 transmission cannot be kept in place forever, and focus is now shifting to the global rollout of COVID-19 vaccinations. Globally we are approaching 1 billion vaccine doses administered, the majority of which have been administered in developed countries in the NH.

### Africa

More than 16 million COVID-19 vaccine doses have been delivered to 31 African countries through the COVAX\* initiative. Concerns have been expressed about the slow pace of vaccination (e.g. in South Africa)<sup>12</sup> and that some countries (e.g. Rwanda) are starting to run out of supplies.<sup>13</sup>

*\*The COVAX Facility is a global fund for vaccine development and procurement led by a coalition that includes UNICEF and WHO. It aims to guarantee equitable worldwide distribution of COVID-19 vaccines.*

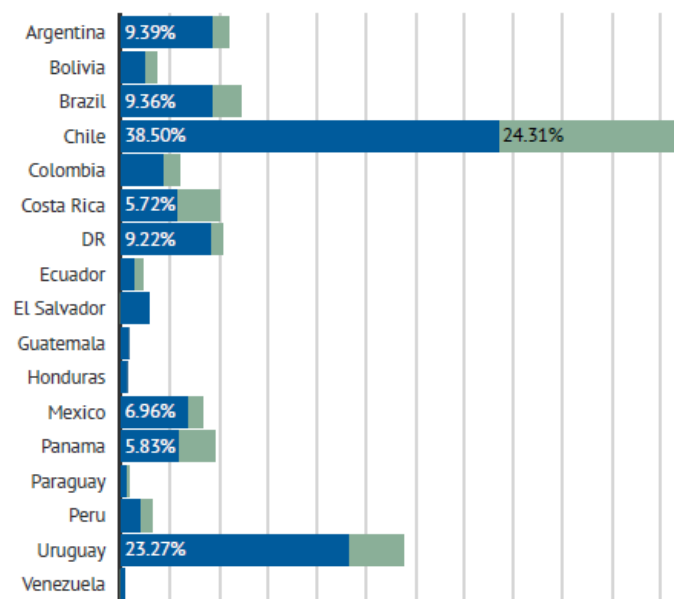
*“Most African countries do not have anywhere near enough vaccines to cover all health workers or all at-risk groups.”*

Tedros Adhanom Ghebreyesus,  
WHO Director General

### South America

Both Brazil and Argentina received their first COVID-19 vaccine doses in March 2021 via the COVAX initiative. Chile has been the most successful with almost 40% of the population at least partially vaccinated,<sup>14</sup> and the impact of increasing vaccination coverage, particularly in older adults, should start to become apparent in the epidemiological data soon.

## Progress of vaccine rollout in South America: April 9 2021<sup>14</sup>



Key: Blue – proportion of population at least partially vaccinated; Green – proportion fully vaccinated.

Figure used with permission from Americas Society/Council of the Americas, [www.as-coa.org/covidtimeline](http://www.as-coa.org/covidtimeline).

### Australia

The national vaccine rollout is currently being expanded, with Phase 1B\* of the vaccination programme now under way and 1.2 million doses administered as of April 13 2021.<sup>15</sup>

*\*Phase 1B includes healthcare and border workers not included in Phase 1A, high-risk workers (e.g. emergency services personnel), those aged over 70 and aboriginal/Torres Strait Islanders over the age of 55.*

As with NPIs to curtail the COVID-19 pandemic, vaccination rates and vaccine supply for both COVID-19 and influenza vary substantially across SH regions and between countries, i.e., there is no uniformity. Information is more readily available from larger economies than for smaller and more restricted economies, where many vaccination programmes are generally at a much earlier stage.

*“Vaccination against influenza remains important this year . . . Vaccination is our best defence against flu viruses.”*

Australian Government, Department of Health,  
April 2021<sup>16</sup>

## GII guest editor Ben Cowling comments:

*“While COVID-19 is at the forefront of everyone’s minds right now, we must not forget about the risks posed by other respiratory viruses. Lessons learned from the COVID-19 pandemic can improve our response to seasonal influenza. It is likely that a substantial fraction of the world will be able to go ‘back to normal’ within the next 6–12 months following successful COVID-19 vaccination campaigns. However, some locations have so far been unable to acquire sufficient COVID-19 vaccines for their populations, while in other locations vaccine hesitancy may become an issue limiting vaccine coverage. Addressing these issues are urgent public health priorities. Looking forward to the next few years, it is clear that influenza will be back and likely back with a bang. Increasing vaccination coverage could help to mitigate the first post-COVID influenza season which could otherwise have considerable impact. Increased awareness of the value of non-pharmaceutical interventions (e.g. facemasks, voluntary home isolation when ill) could also contribute to mitigation of seasonal influenza.”*

## GII summary statement

NPIs have limited the circulation of both SARS-CoV-2 and influenza in many countries during the ongoing COVID-19 pandemic, although the stringency of the NPIs implemented has varied greatly both over time and between countries across the globe. While the link between stringency of NPI implementation and influenza circulation is not always clear cut, WHO report that global levels of influenza virus remain lower than expected for the time of year. As successful COVID-19 vaccination campaigns are implemented and countries begin to lift NPIs, a more severe influenza season could arise if natural immunity to influenza and vaccination coverage are reduced and/or more virulent influenza strains develop. Vaccination remains our best defence against a potential resurgence of influenza post-COVID and can prevent an additional unnecessary burden being placed on our depleted health care systems.

## About the GII

The GII is a global expert scientific forum that includes international scientists, researchers and clinicians with expertise in epidemiology, virology, infectious diseases, immunology, health economics, public health, primary care and geriatrics.

The GII receives financial support from Sanofi Pasteur which covers the involvement of Ogilvy Health, a medical communications agency who act as secretariat for the GII as well as coordinating logistics for the annual meeting, managing other GII projects and offering strategic counsel.

## References

1. Van Beusekom M. Experts: Don't count on mild flu season amid COVID-19. Centre for Infectious Disease Research and Policy (CIDRAP) News. Available at: <https://www.cidrap.umn.edu/news-perspective/2020/10/experts-dont-count-mild-flu-season-amid-covid-19>. Accessed April 2021.
2. Rubin R. What happens when COVID-19 collides with flu season? *JAMA* 2020;324:923–25.
3. WHO. Influenza Update No. 390. Available at: [https://www.who.int/influenza/surveillance\\_monitoring/updates/2021\\_03\\_29\\_surveillance\\_update\\_390.pdf?ua=1](https://www.who.int/influenza/surveillance_monitoring/updates/2021_03_29_surveillance_update_390.pdf?ua=1). Accessed April 2021.
4. Blavatnik School of Government, University of Oxford. COVID-19 government response tracker. Available at: <https://www.bsg.ox.ac.uk/research/research-projects/covid-19-government-response-tracker>. Accessed April 2021.
5. Baker RE, Yang W, Vecchi GA, *et al.* Assessing the influence of climate on wintertime SARS-CoV-2 outbreaks. *Nature Comms* 2021;12:846.
6. Towers S, Chowell G, Hameed R, *et al.* Climate change and influenza: the likelihood of early and severe influenza seasons following warmer than average winters. *PLoS Curr* 2013;5:ecurrents.flu.3679b56a3a5313dc7c043fb944c6f138.
7. Baker RE, Park SW, Yang W, *et al.* The impact of COVID-19 nonpharmaceutical interventions on the future dynamics of endemic infections. *Proc Natl Acad Sci USA* 2020;117(48):30547–53.
8. Matrajt L, Longini IM Jr. Critical immune and vaccination thresholds for determining multiple influenza epidemic waves. *Epidemics* 2012;4:22–32.
9. Zipfel C, Colizza V, Bansal S. Double trouble? When a pandemic and seasonal virus collide. *MedRxiv* 2021; doi:10.1101/2020.03.30.20047993.
10. Jones N. How COVID-19 is changing the cold and flu season. *Nature* 2020;588:388–90.
11. Richmond H, Rees N, McHale S, *et al.* Seasonal influenza vaccination during a pandemic. *Hum Vacc Immunother* 2020;16: 2219–21.
12. Independent Online. SA Medical Association concerned about slow pace of COVID-19 vaccine rollout. Available at: <https://www.iol.co.za/news/politics/sa-medical-association-concerned-about-slow-pace-of-covid-19-vaccine-rollout-4e44a640-fc6a-44d5-85ad-cf6304a76255>. Accessed April 2021.
13. Mwai P. BBC Reality Check. Covid-19 Africa: What is happening with vaccines? Available at: <https://www.bbc.co.uk/news/56100076>. Accessed April 2021.
14. Americas Society/Council of the Americas. Timeline: Tracking Latin America's road to vaccination. Available at: [www.as-coa.org/covidtimeline](http://www.as-coa.org/covidtimeline). Accessed April 2021.
15. Australian Government. Department of Health. Coronavirus (COVID-19) health alert. Available at: <https://www.health.gov.au/initiatives-and-programs/covid-19-vaccines/getting-vaccinated-for-covid-19/when-will-i-get-a-covid-19-vaccine>. Accessed April 2021.
16. Australian Government. Department of Health. Flu vaccination in 2021. Available at: <https://www.health.gov.au/news/flu-vaccination-in-2021>. Accessed April 2021.