NIVEL
Research for better care

FluCov-Bulletin – end-February 2023

FluCov project: ***combining data from around the world to better understand the impact of COVID-19 on influenza activity***

Commentary

Contents

It is now more than three years since a cluster of atypical pneumonia cases in Wuhan, China, was reported to the World Health Organization (WHO) (January 1, 2020) that was later linked to the new **SARS-CoV-2** virus. The FluCov Bulletin provides an overview of the number of positive cases of **influenza** and **SARS-CoV-2** and the percentage of specimens that tested positive from January 2019 onwards in 22 countries across most regions of the world (see page 4).

Results

Globally, influenza circulation continued its decline in February 2023 (Figure 1), after rising above peak detections observed during the winters of 2019/20, 2020/21 and 2021/22. The following patterns have been observed for influenza in February:

- **China** is experiencing a steep rise in **influenza** detections (A(H1N1)pdm09), that has now surpassed any other peak seen since the onset of the COVID-19 pandemic. This increase is also shown by the percentage of specimens testing positive for **influenza** (positivity rate), that increased from 1% to 34% in three weeks.
- After a decrease in the number of detections in January, **influenza** activity slowly started to increase again in **France, Germany, Italy,** and **Spain**. **Influenza** B is currently dominant (**influenza** B/Victoria when subtyped) [1, 2] in these countries.
- An increase in **influenza** activity was also observed in **Israel, Netherlands,** and **Thailand**; all these countries reported a mix of **influenza** A and B.
- The clear decreases in **influenza** activity that was observed in January in North America (**Canada, Mexico** and the **United States**) and the **United Kingdom** continued in the first half of February. **Influenza** activity also decreased in **Poland** during this period.
- No or low **influenza** activity was reported in the Southern Hemisphere countries covered by the Bulletin **(Australia, Brazil, and South Africa)**.
- **Influenza** circulation is generally low, or decreasing, in most Asian countries covered by the Bulletin (**India**, **South Korea**, and **Japan**) except for in **China** and **Thailand**.

Globally, **SARS-CoV-2** detections have been generally decreasing since August 2022 (see Figure 1; note: the increase in November 2022 was largely driven by detections in Asia e.g. China). The following patterns were observed for **SARS-CoV-2** in February 2023:

- Relatively low **SARS-CoV-2** activity was reported in most countries covered by the Bulletin: **Australia, Canada, Germany, Egypt, France, India, Israel, Italy, Netherlands, Philippines, Poland, Spain, South Africa, Thailand, United Kingdom, United States,** and **Vietnam.**
- The decrease in **SARS-CoV-2** detections observed at the beginning of the new year continued in **Australia, Brazil, Japan, Mexico** and **South Korea**, after the peak reported in December. In **China**, weekly **SARS-CoV-2** detections seem to be nearly absent, after a sharp decrease in December 2023.

Implications

After an early onset and a peak that was reached in December 2022 (around week 49/2022 in North American countries and week 51/2022 in European countries), the current influenza season has slowed down. However, **China** is experiencing a steep rise in influenza detections (the only country in this Bulletin), mainly driven by influenza A(H1N1)pdm09, that has rapidly led to antiviral shortages [4]. Interestingly, a change in the ratio of circulating influenza virus types has been observed in countries where influenza activity is still present: while influenza A(H3) is still present, influenza A(H1N1)pdm09 is the dominant subtype globally. Also, influenza B/Victoria is now more common and increasing in a number of European countries (e.g. in **France, Spain, Italy, Germany**). The detection and characterization of influenza B viruses has become increasingly important in the context of the COVID-19 pandemic, where influenza B/Yamagata appears to be extinct [5]. Further analyses in countries where influenza B is present and dominant (e.g. **Malaysia** [6]) will be important to confirm this in the coming months.

After intense activity in most Asian countries during the 2022/2023 winter, weekly SARS-CoV-2 detections are decreasing: the decrease is also being observed in Japan, where SARS-CoV-2 activity was high in the first weeks of 2023.

Globally, influenza and SARS-CoV-2 are co-circulating; however, it seems that the overall activity of both viruses is decreasing. There has been a recent increase in cases of influenza B in some countries (**France**, **Spain**, **Italy, Germany**) but this this is a common characteristic of influenza epidemics, with first an influenza A peak and then an influenza B peak [7]. Strengthening surveillance and monitoring activities is important as unexpected events continue to occur such as the increased influenza activity in **China** (influenza A(H1N1)pdm09) and **Malaysia** (influenza B) and the emergence of human H5N1 avian influenza cases which may spread in the general population [8].

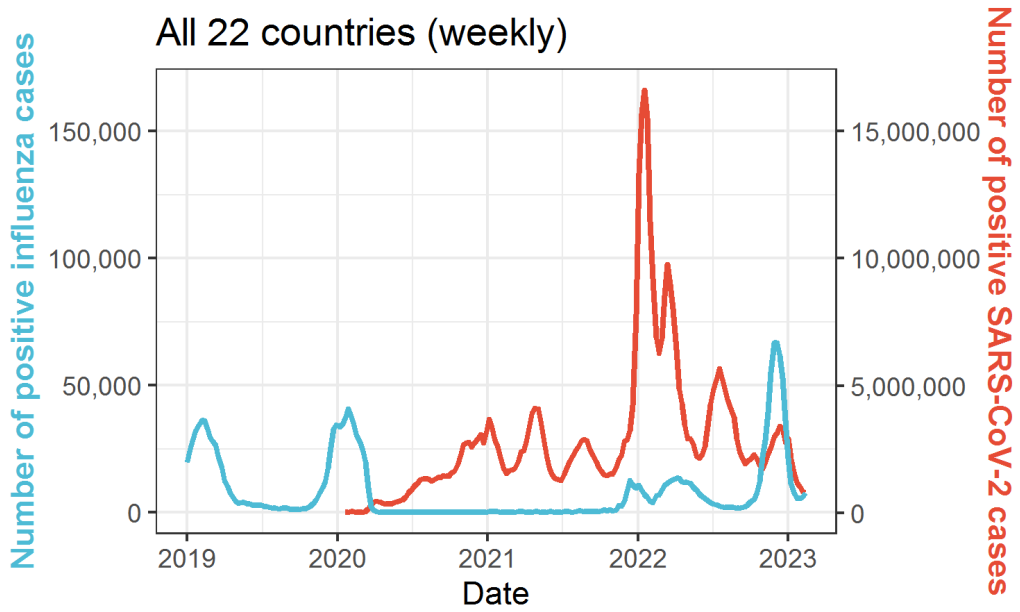


Figure 1: SARS-CoV-2 and influenza detections in the 22 countries covered by the Bulletin (period: from week 1/2019 to week 8/2023)

Disclaimer: Comparisons between countries and seasons of influenza and SARS-CoV-2 detections should be made with care, as national surveillance systems may differ (e.g. surveillance structures and testing intensity) and change over time.

Monthly plots by country

The plots per country show weekly data for **influenza** and of **SARS-CoV-2** infections from January 1, 2019 up to February 28, 2023. This FluCov-Bulletin includes the countries Canada, United States, Mexico, Brazil, United Kingdom, France, Germany, Italy, Netherlands, Spain, Poland, South Africa, Egypt, China, Japan, South Korea, India, Philippines, Thailand, Vietnam, Israel and Australia.

Per country, the first plot displays the number of positive **influenza** (in blue) and **SARS-CoV-2** (in red) detections. An overview of the absolute number of **influenza** and of **SARS-CoV-2** detections per country can be found on on **pages 26-28 of this FluCov-Bulletin (click here).** The bar displays the Stringency Index (SI; a country-specific composite metric of the mitigation measures that are in place) over time. The second plot shows the **influenza** detections by subtypes/lineages reported to FluNet. The third plot displays the percentage of specimens testing positive for **influenza** during the current season (in red), the last season, and the average of the two pre COVID-19 seasons (2017-18 and 2018-19)

The FluCov Dashboard is live!
All Figures and Tables in the FluCov-Bulletin can now be accessed (real-time) at:
https://www.nivel.nl/en/dossier-epidemiology-respiratory-viruses/flucov-dashboard

Countries (click to view plot)

North America
Canada
United States

Central America Caribbean
Mexico

Tropical South America
Brazil

Northern Europe
United Kingdom

Eastern Europe
Poland

South West Europe
France
Germany
Italy
Netherlands
Spain

Northern Africa
Egypt

Southern Africa
South Africa

Eastern Asia
China
Japan
South Korea

Southern Asia
India

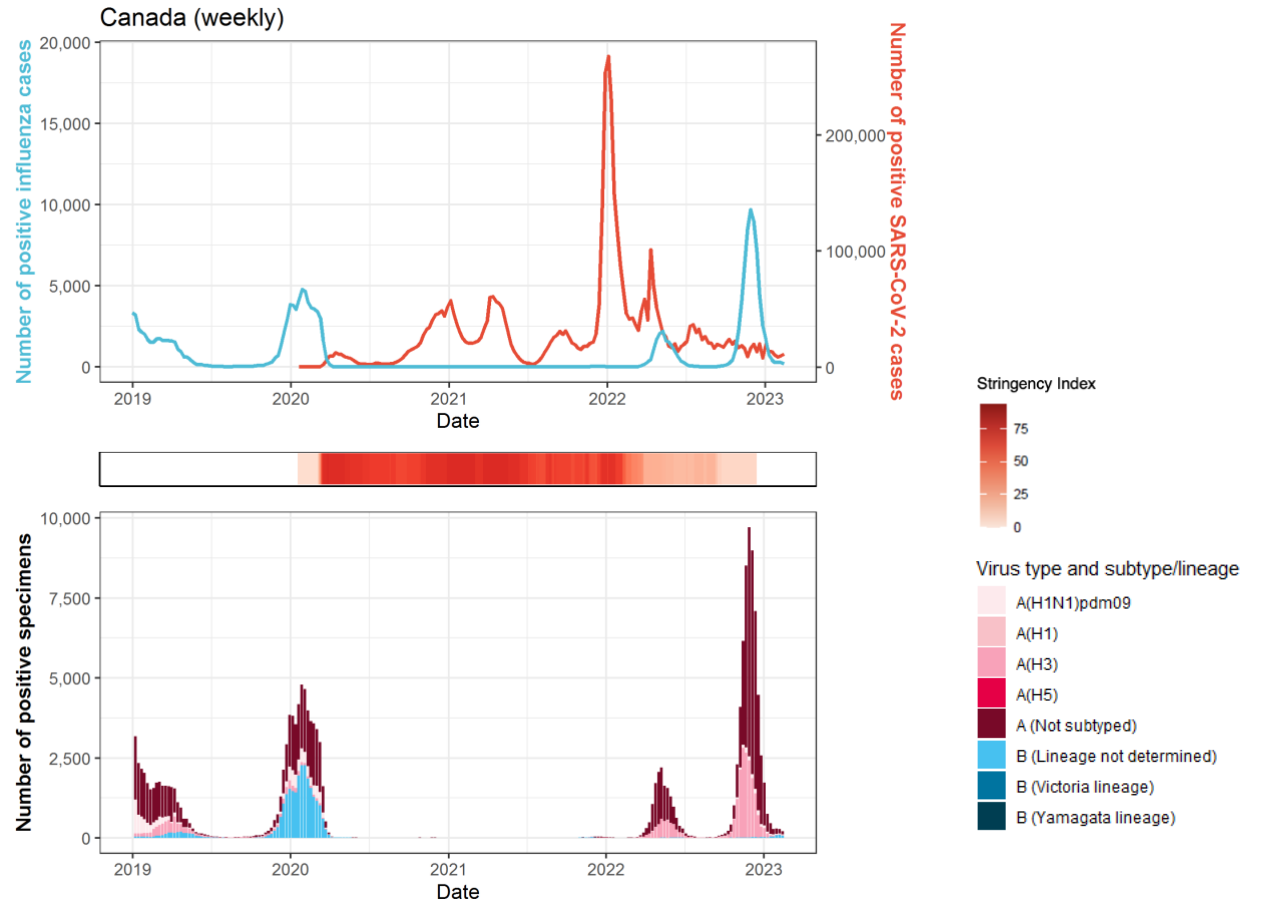
South East Asia
Philippines
Thailand
Vietnam

Western Asia
Israel

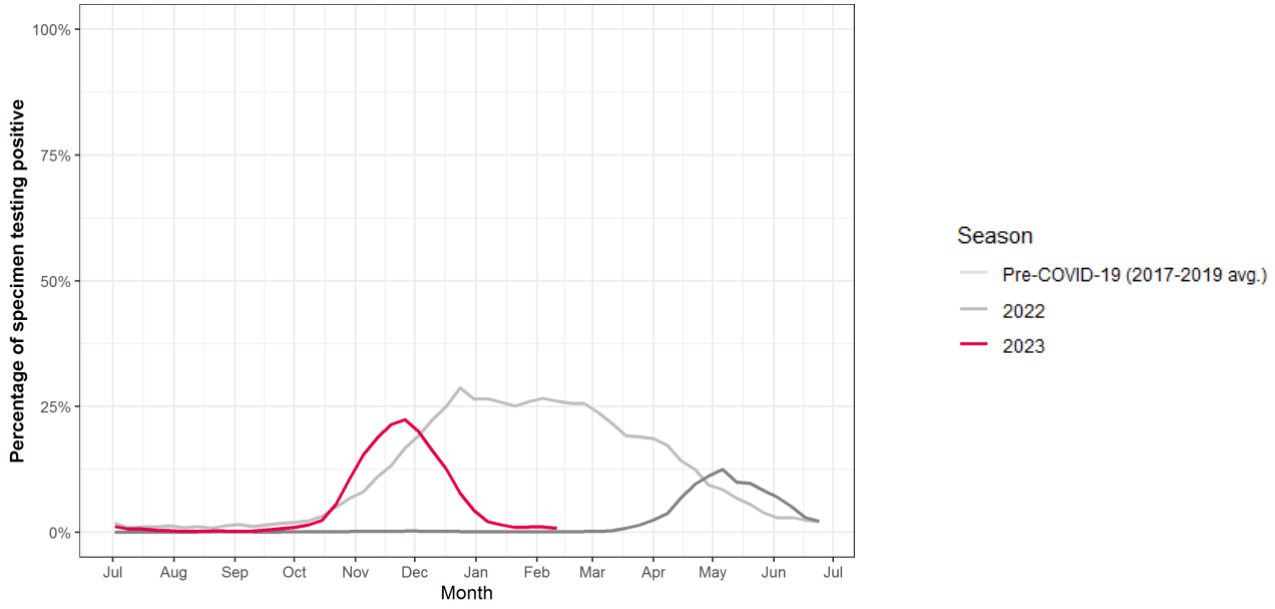
Oceania
Australia

North America

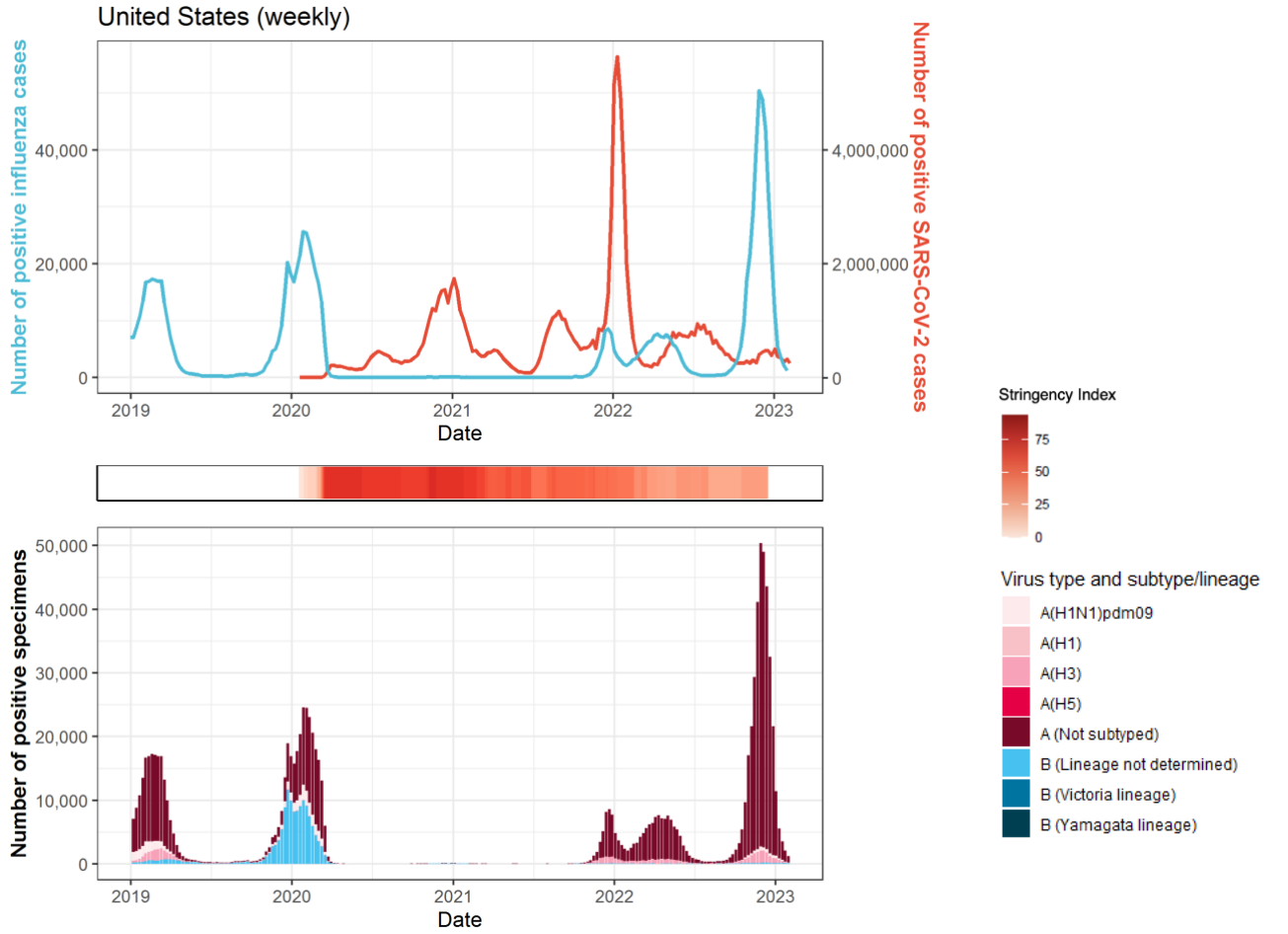
Canada



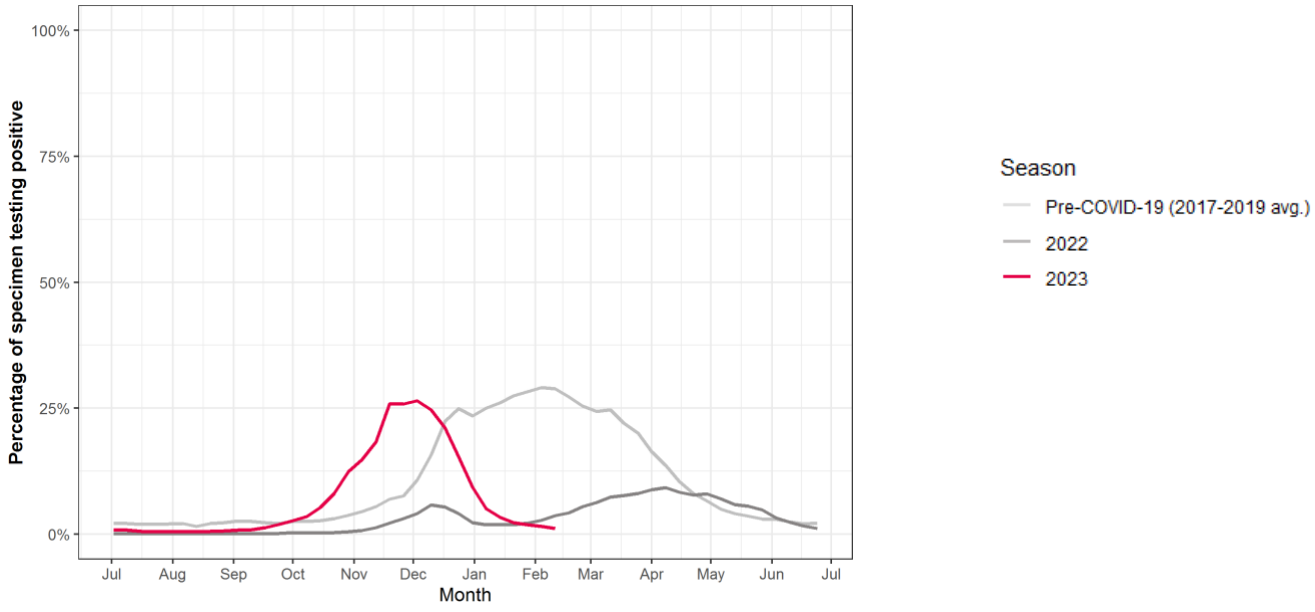
Percentage of specimens testing positive for influenza in different seasons



United States

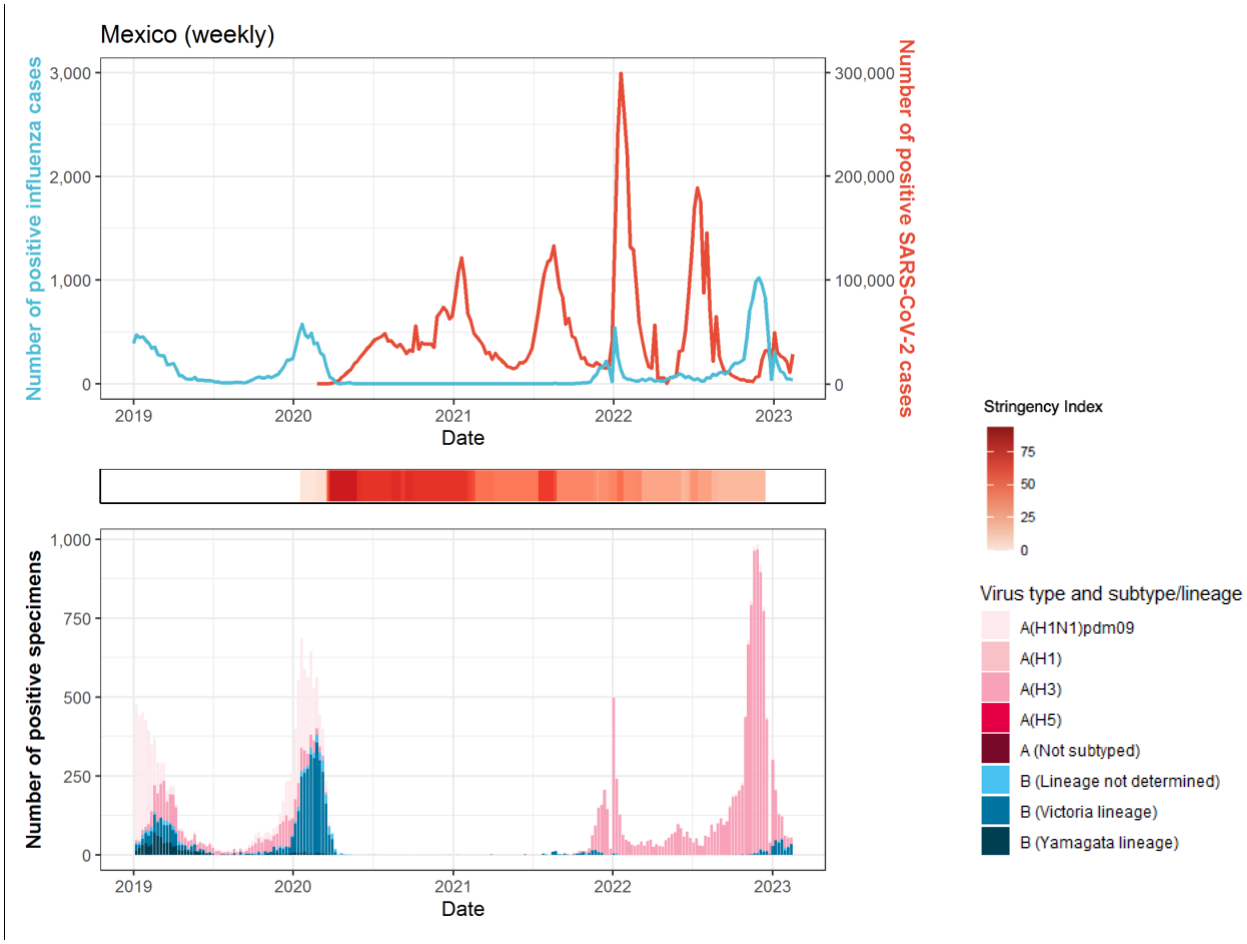


Percentage of specimens testing positive for influenza in different seasons

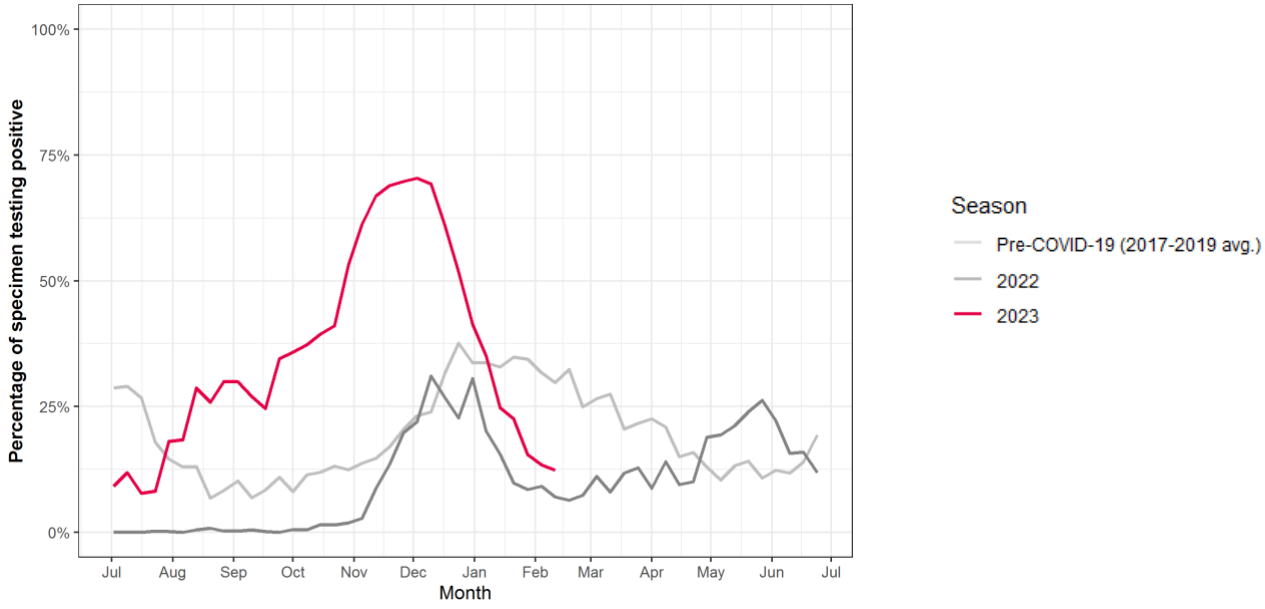


Central America Caribbean

Mexico

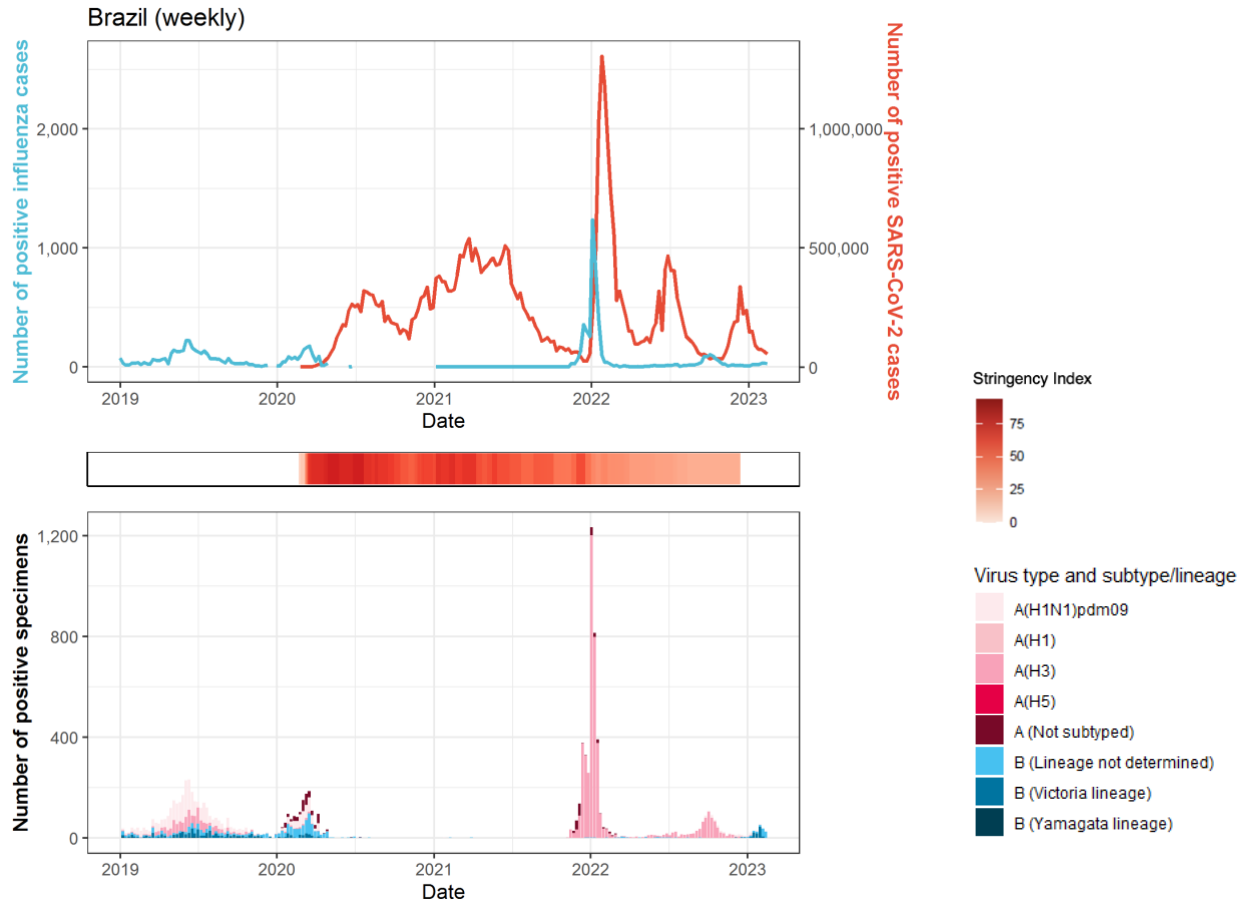


Percentage of specimens testing positive for influenza in different seasons

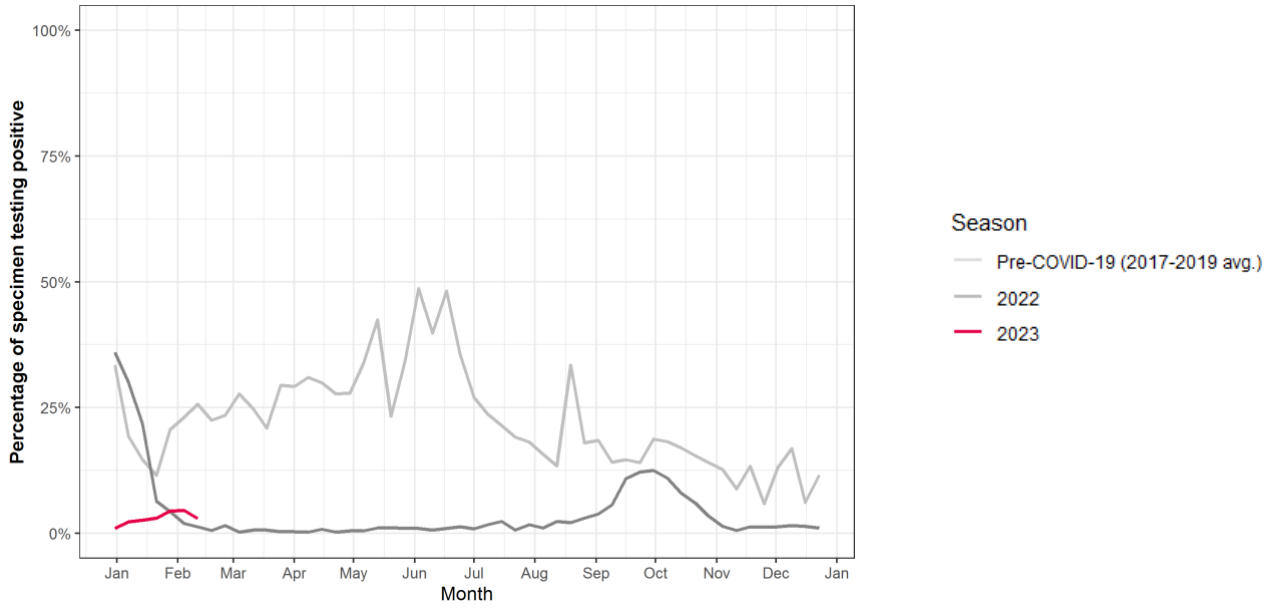


Tropical South America

Brazil

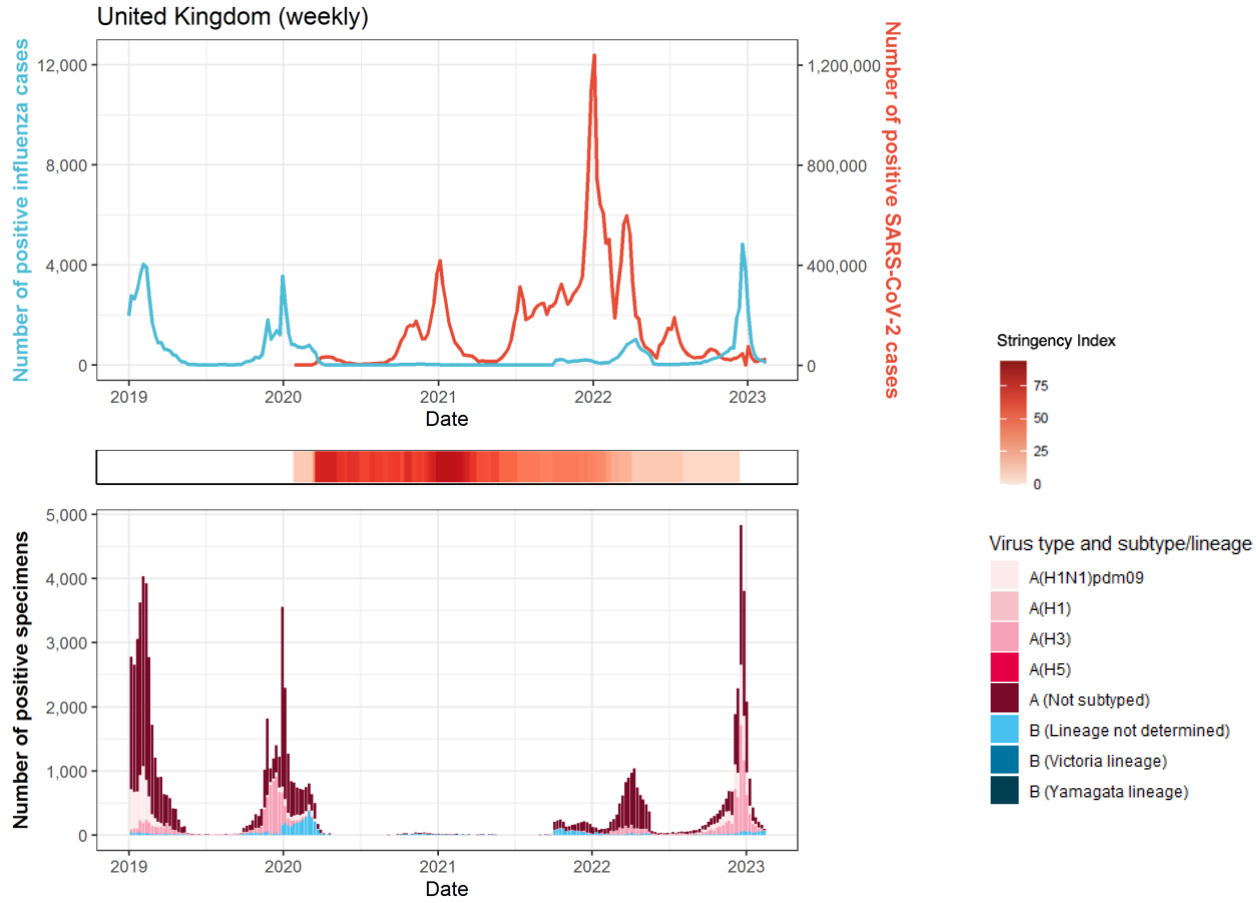


Percentage of specimens testing positive for influenza in different seasons



Northern Europe

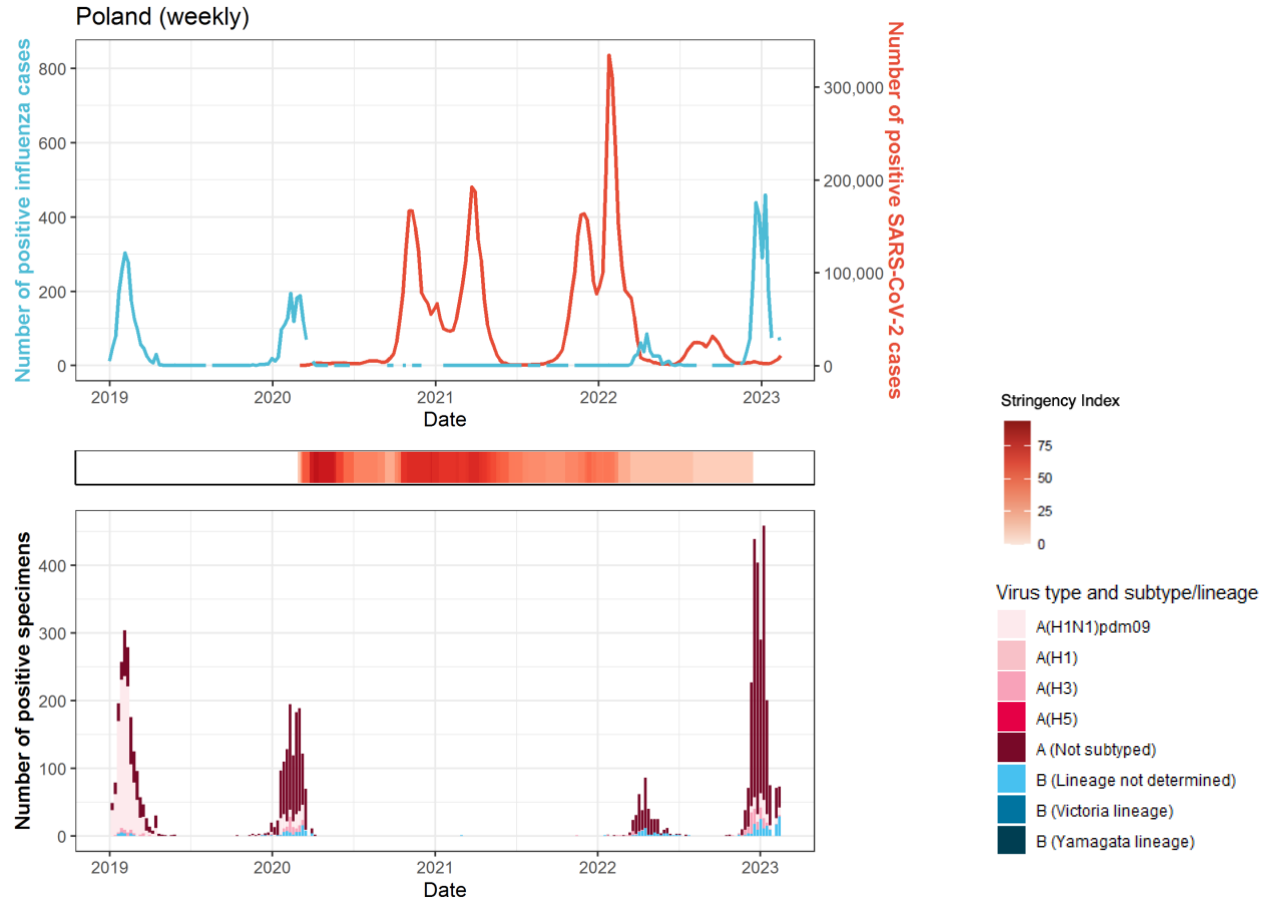
United Kingdom



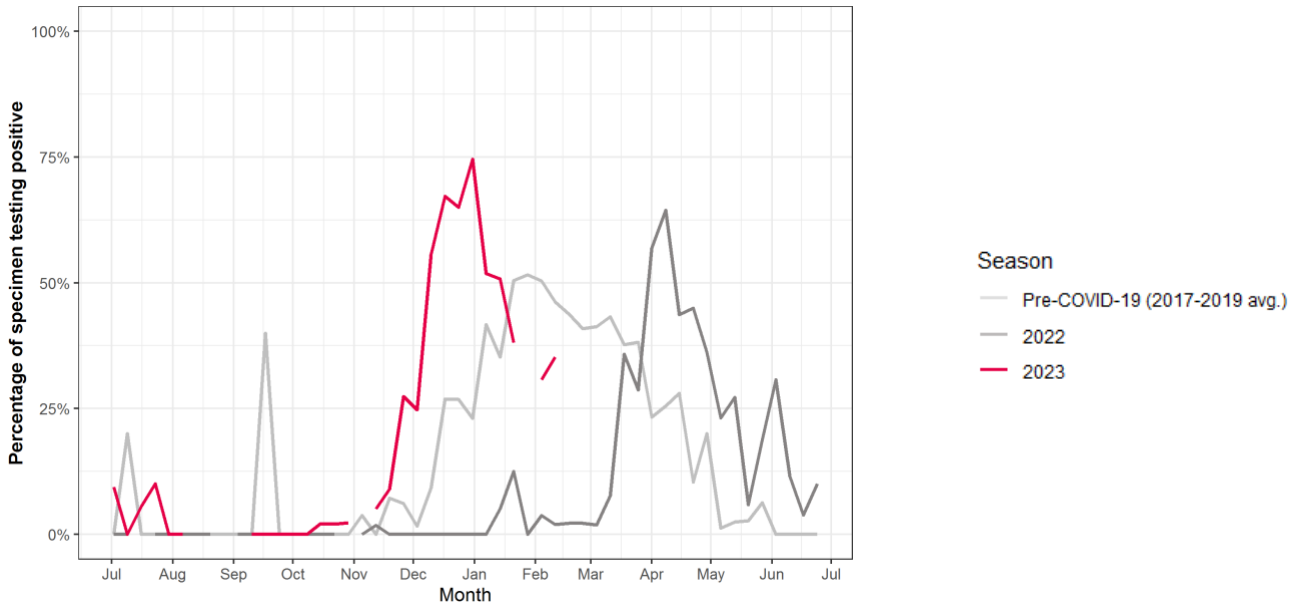
Percentage of specimens testing positive for influenza in different seasons: data not available

Eastern Europe

Poland

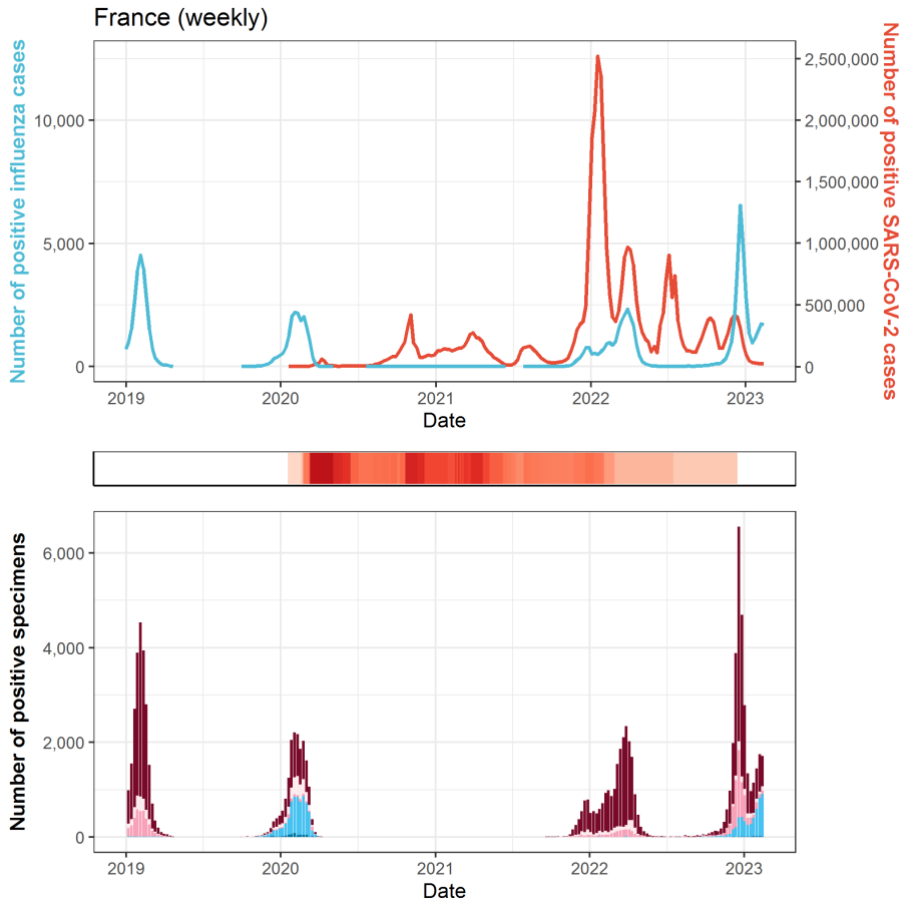


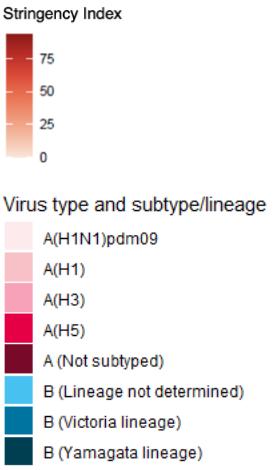
Percentage of specimens testing positive for influenza in different seasons



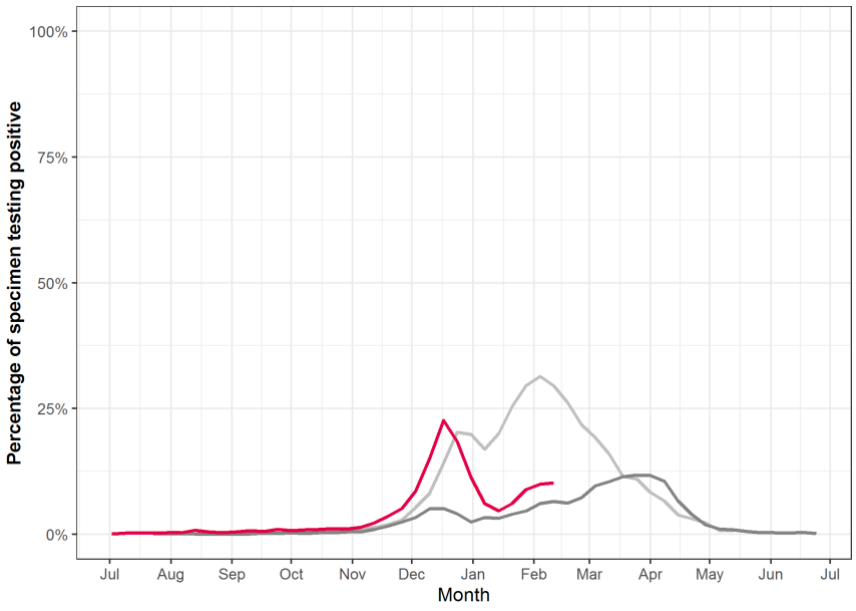
South West Europe

France

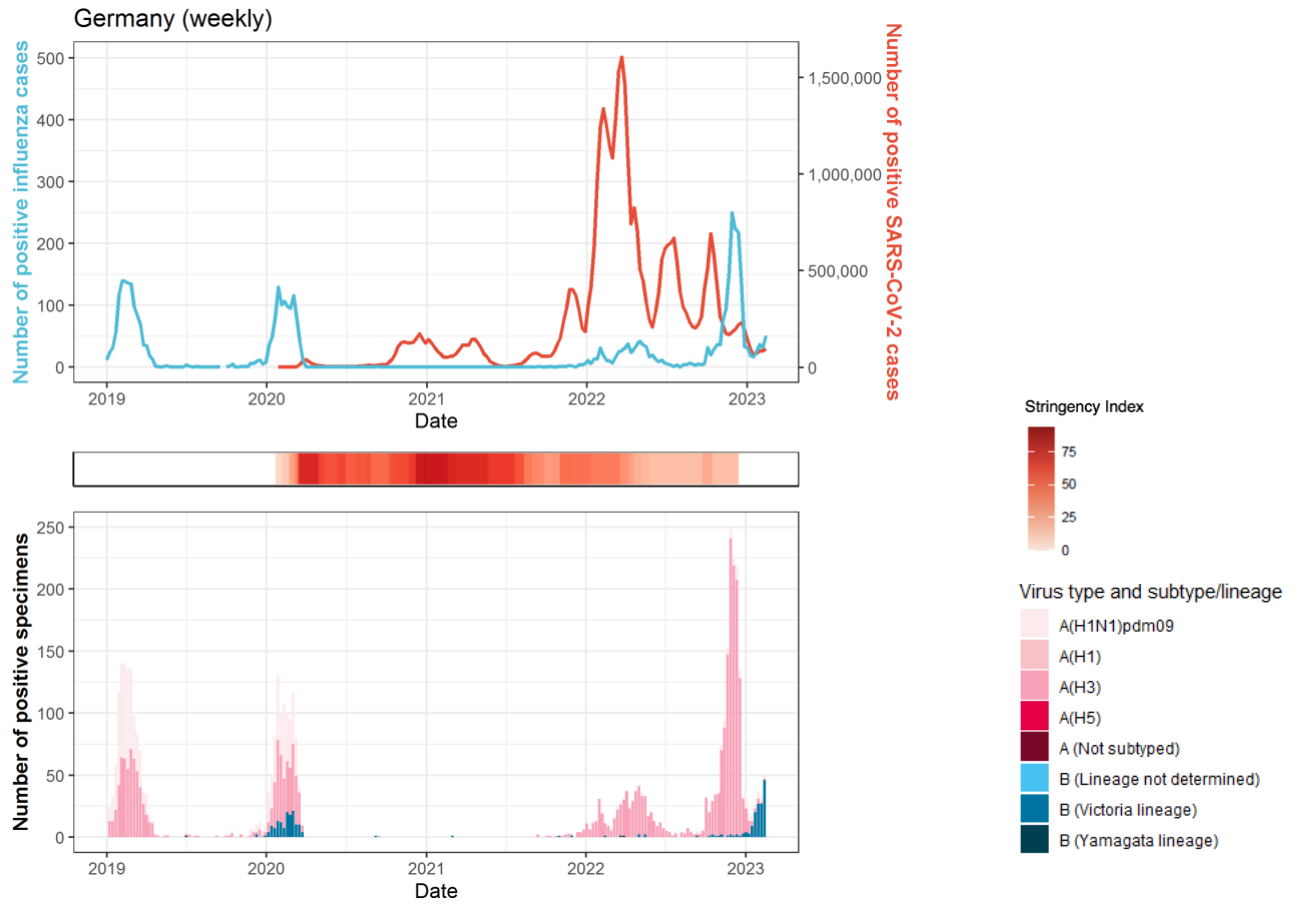




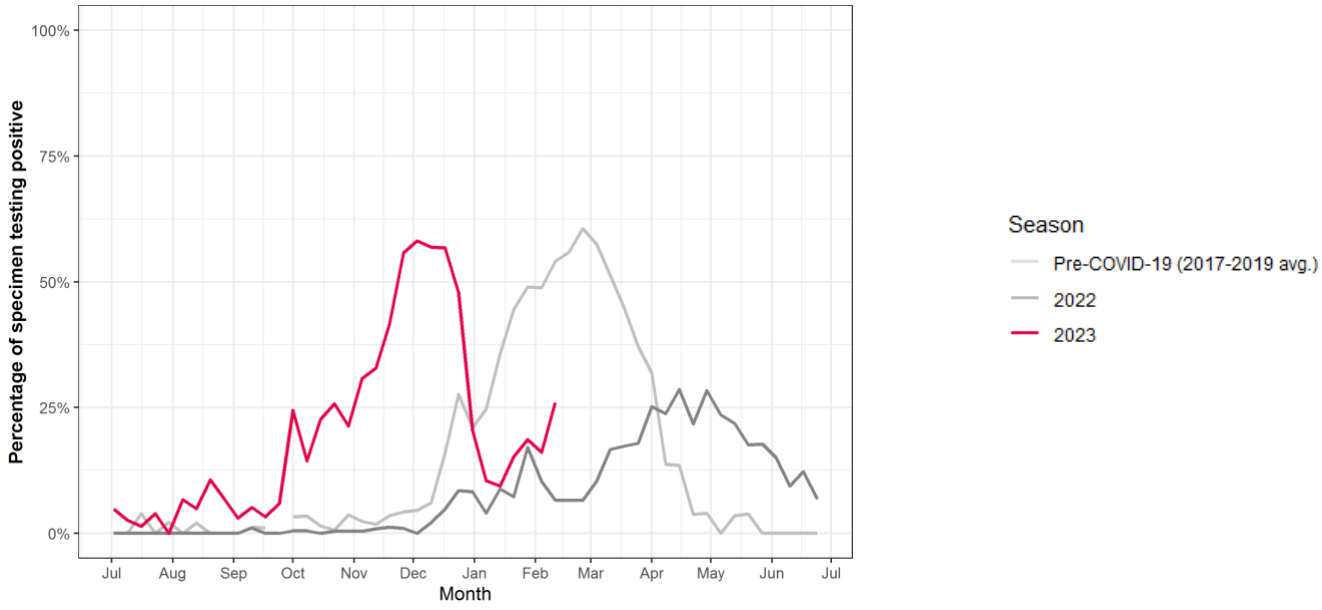
Percentage of specimens testing positive for influenza in different seasons



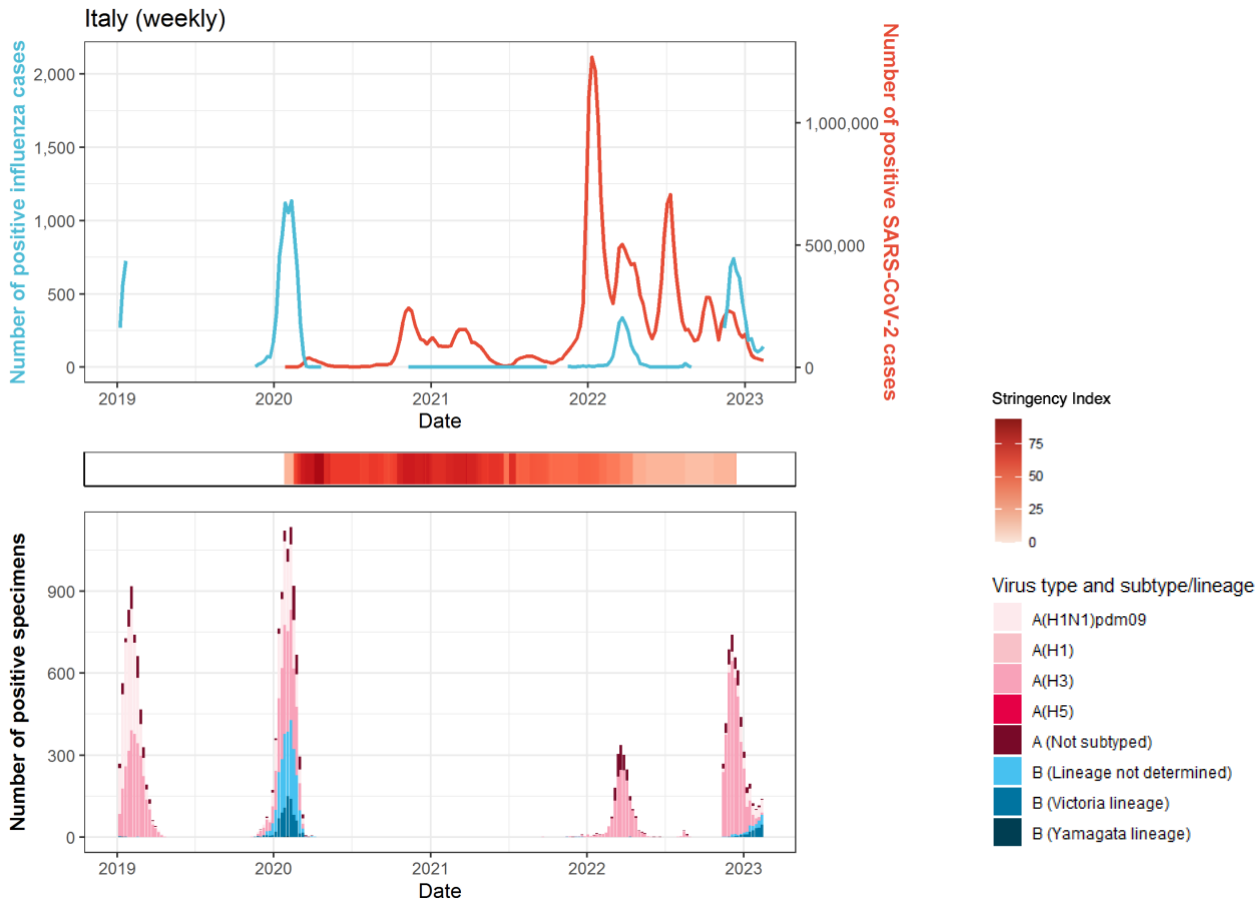
Germany



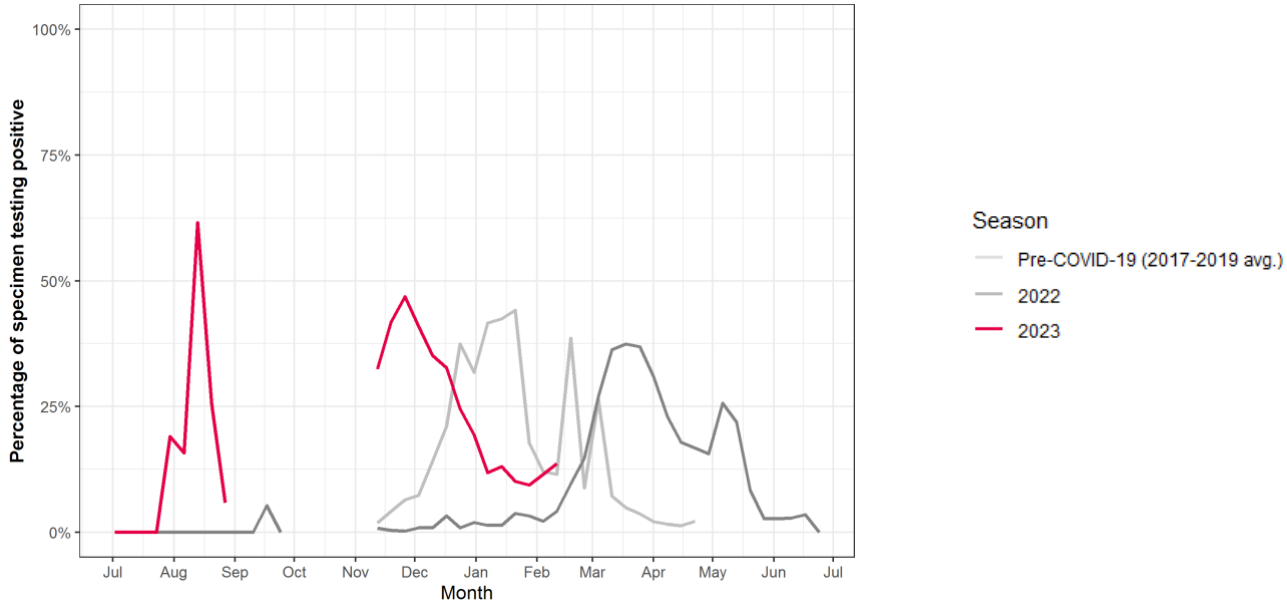
Percentage of specimens testing positive for influenza in different seasons



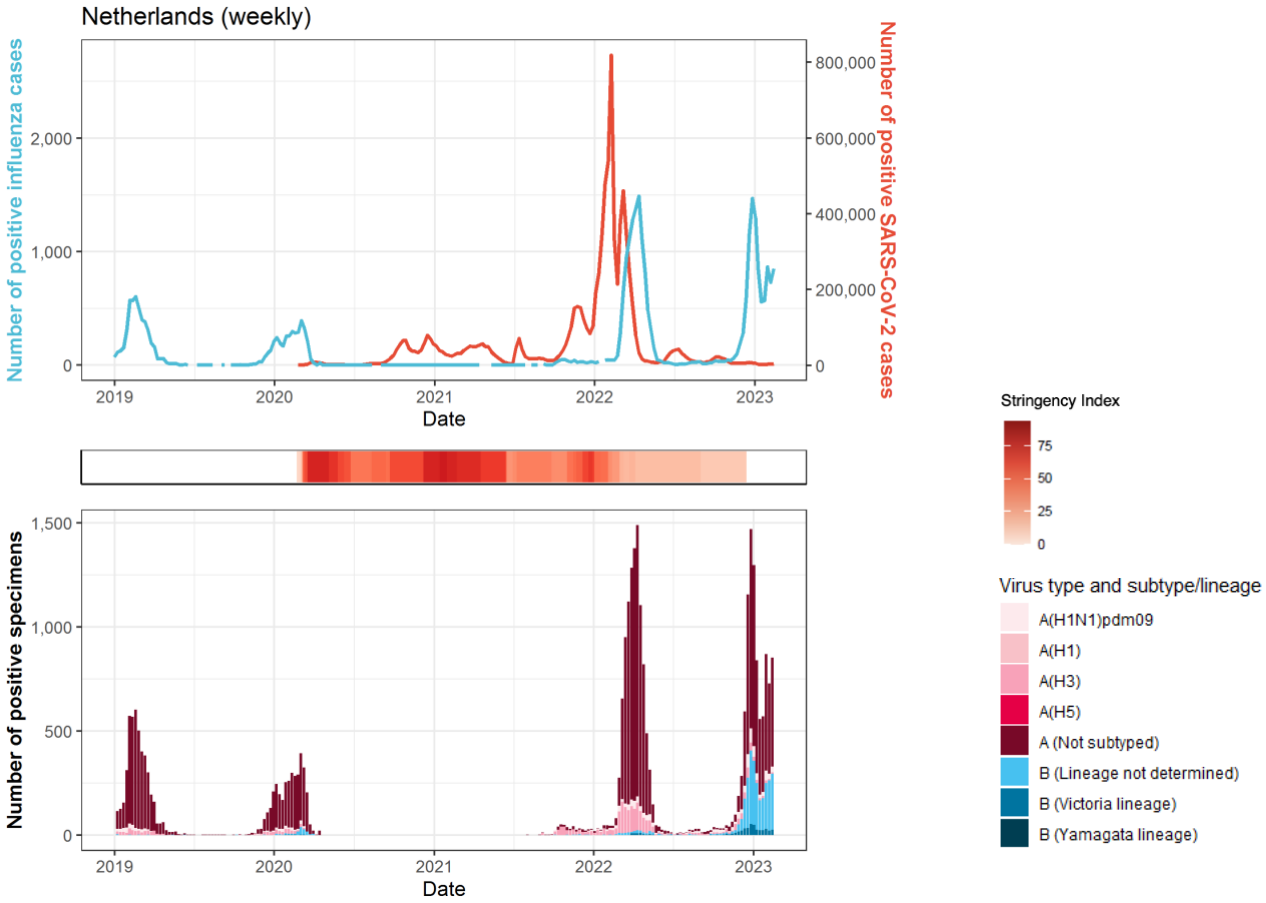
Italy



Percentage of specimens testing positive for influenza in different seasons

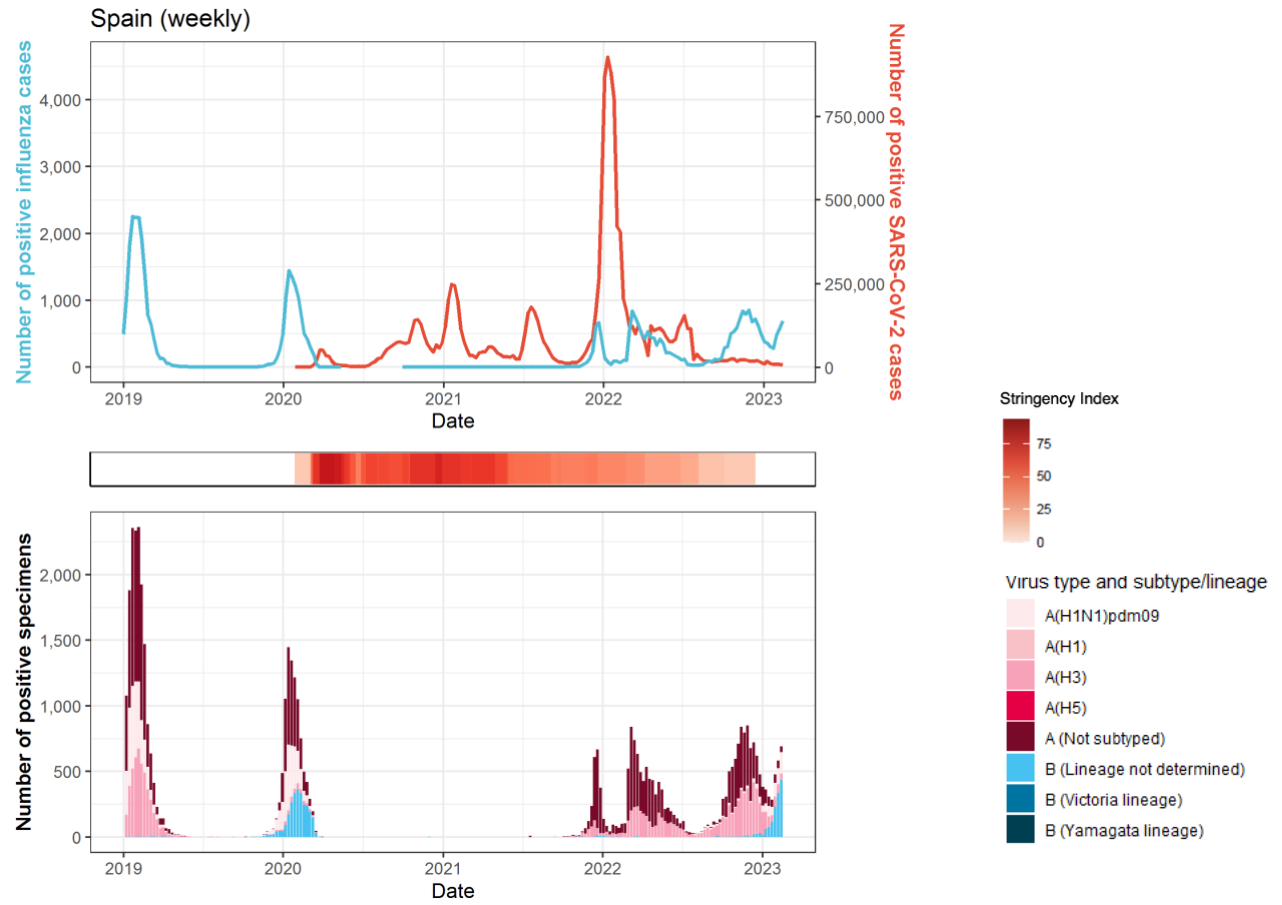


Netherlands

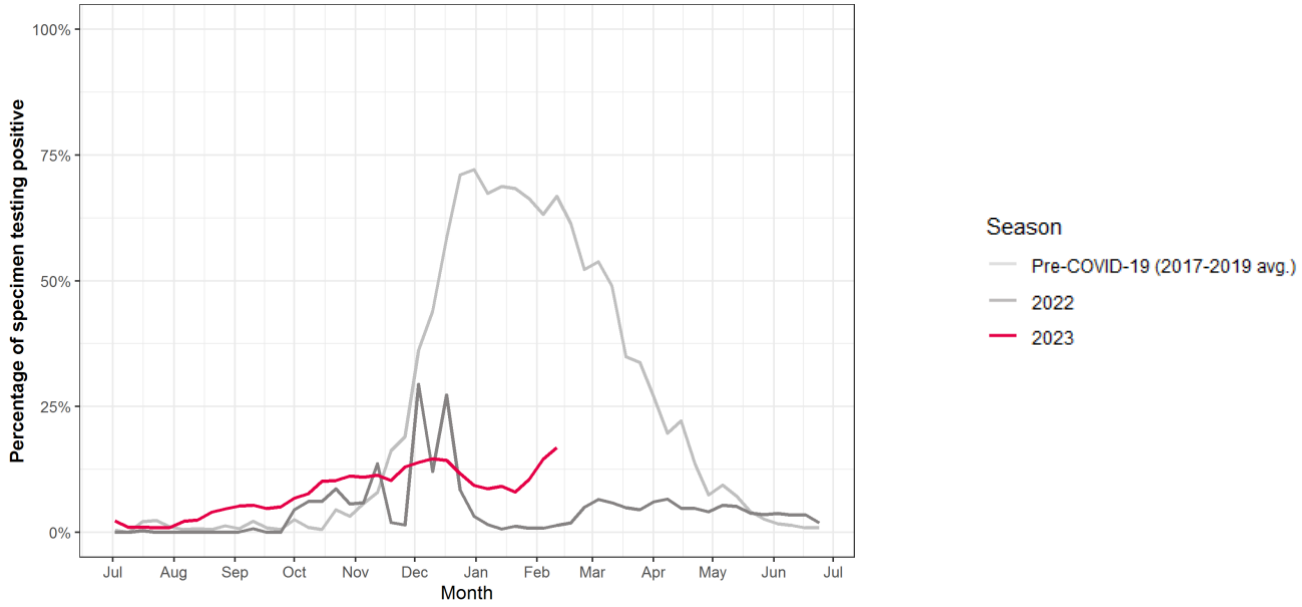


Percentage of specimens testing positive for influenza in different seasons: data not available

Spain

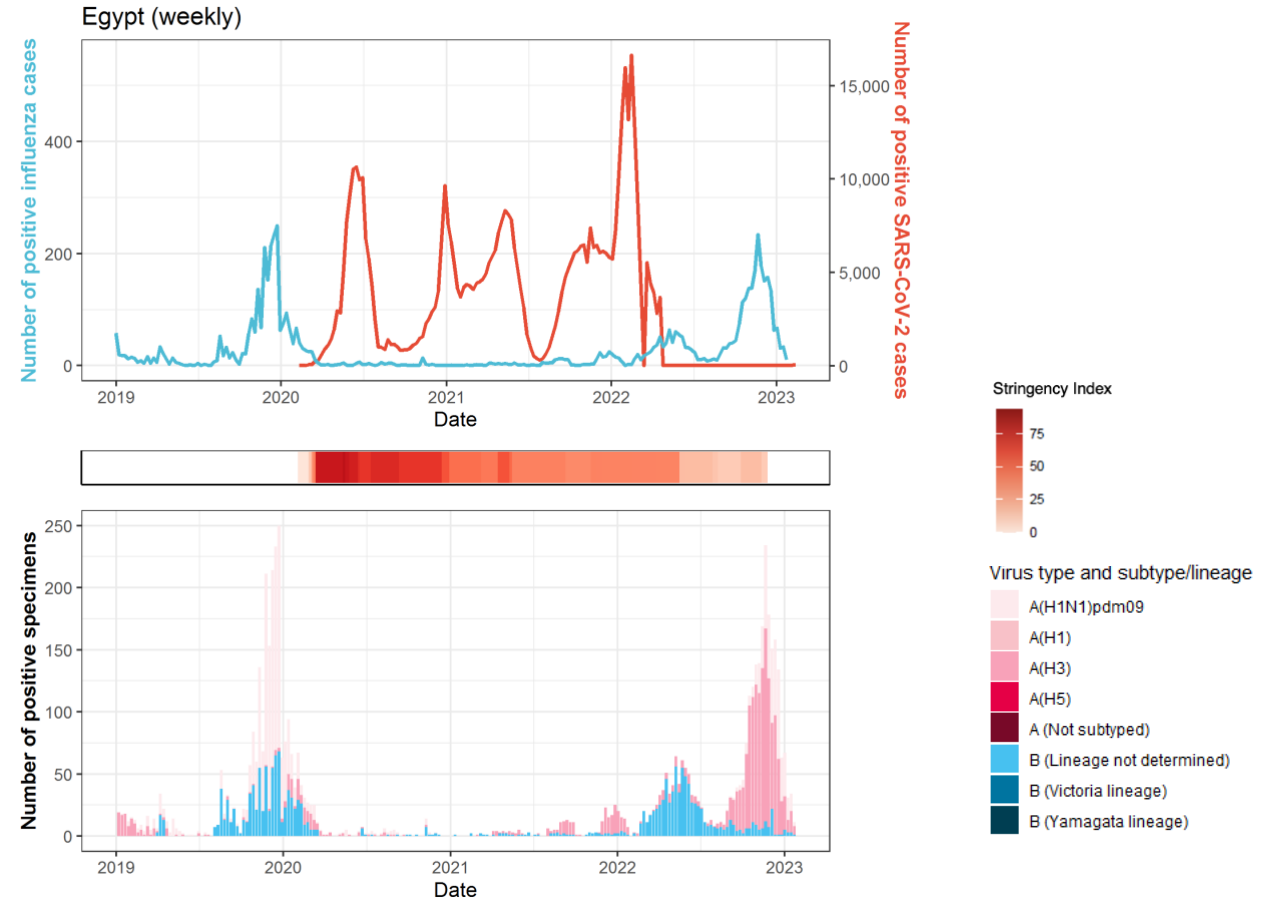


Percentage of specimens testing positive for influenza in different seasons

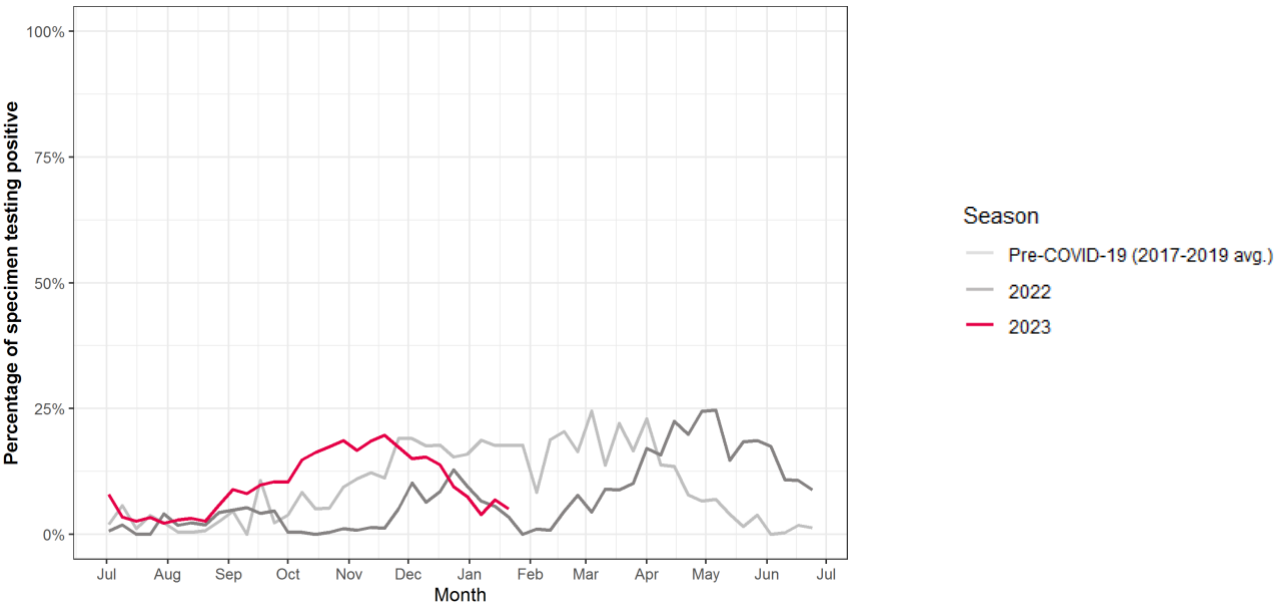


Northern Africa

Egypt

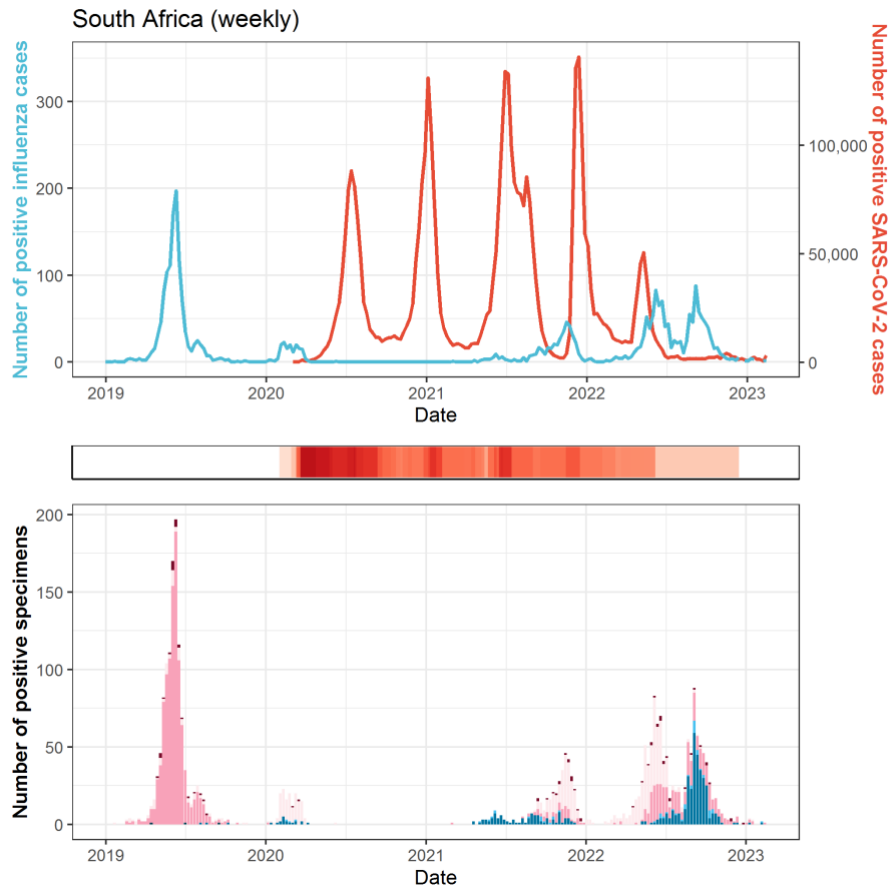


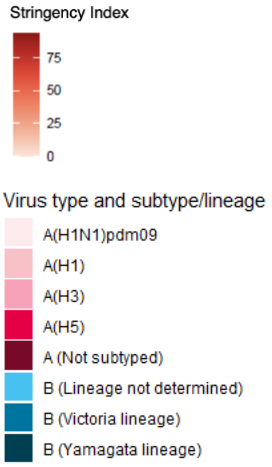
Percentage of specimens testing positive for influenza in different seasons



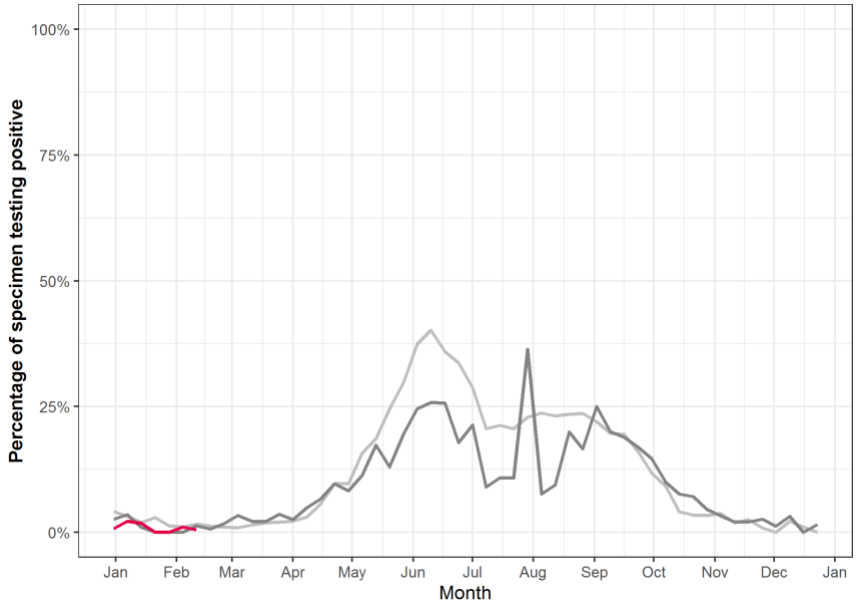
Southern Africa

South Africa



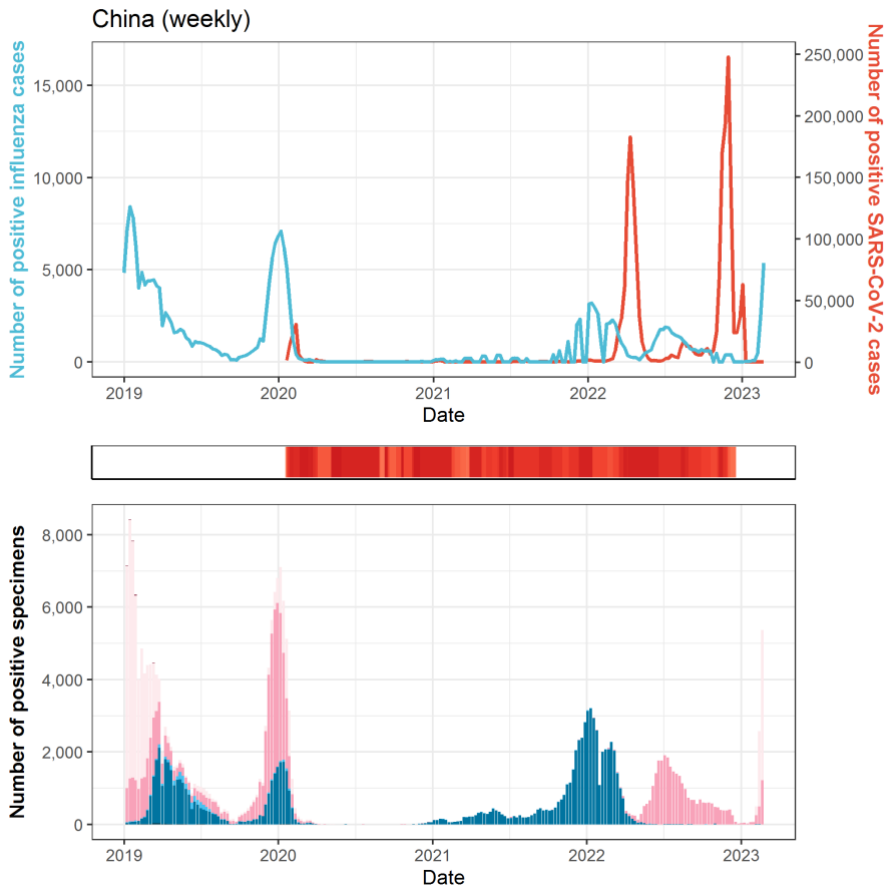


Percentage of specimens testing positive for influenza in different seasons

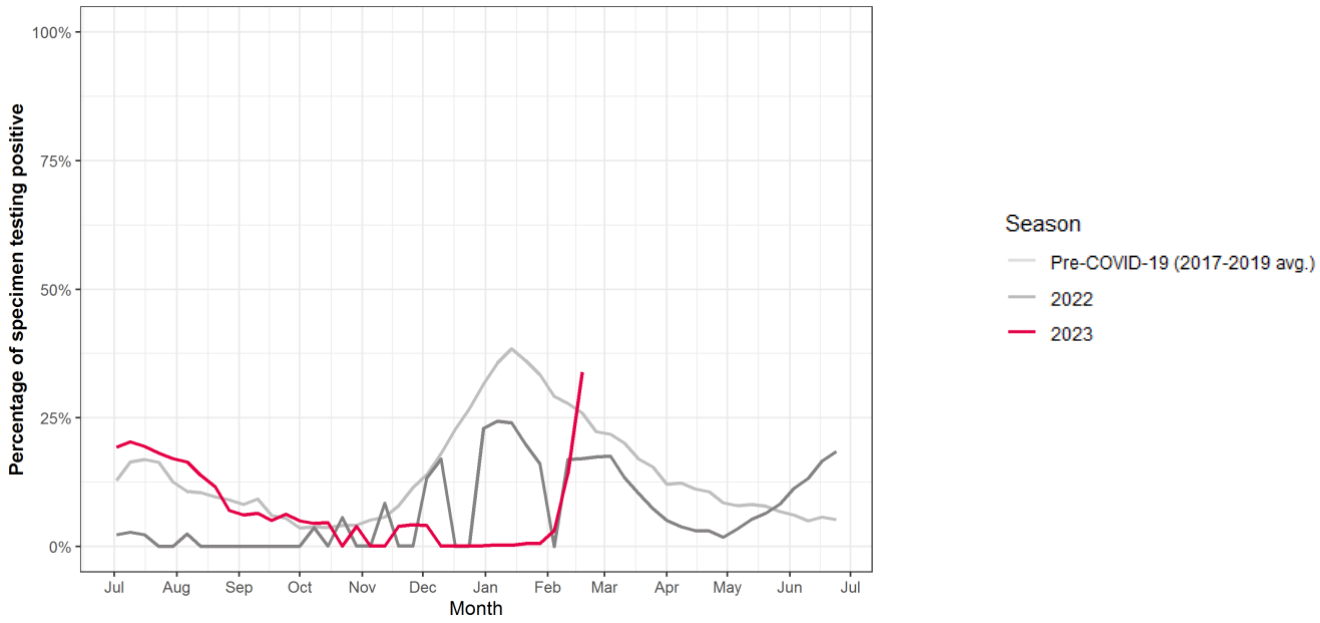


Eastern Asia

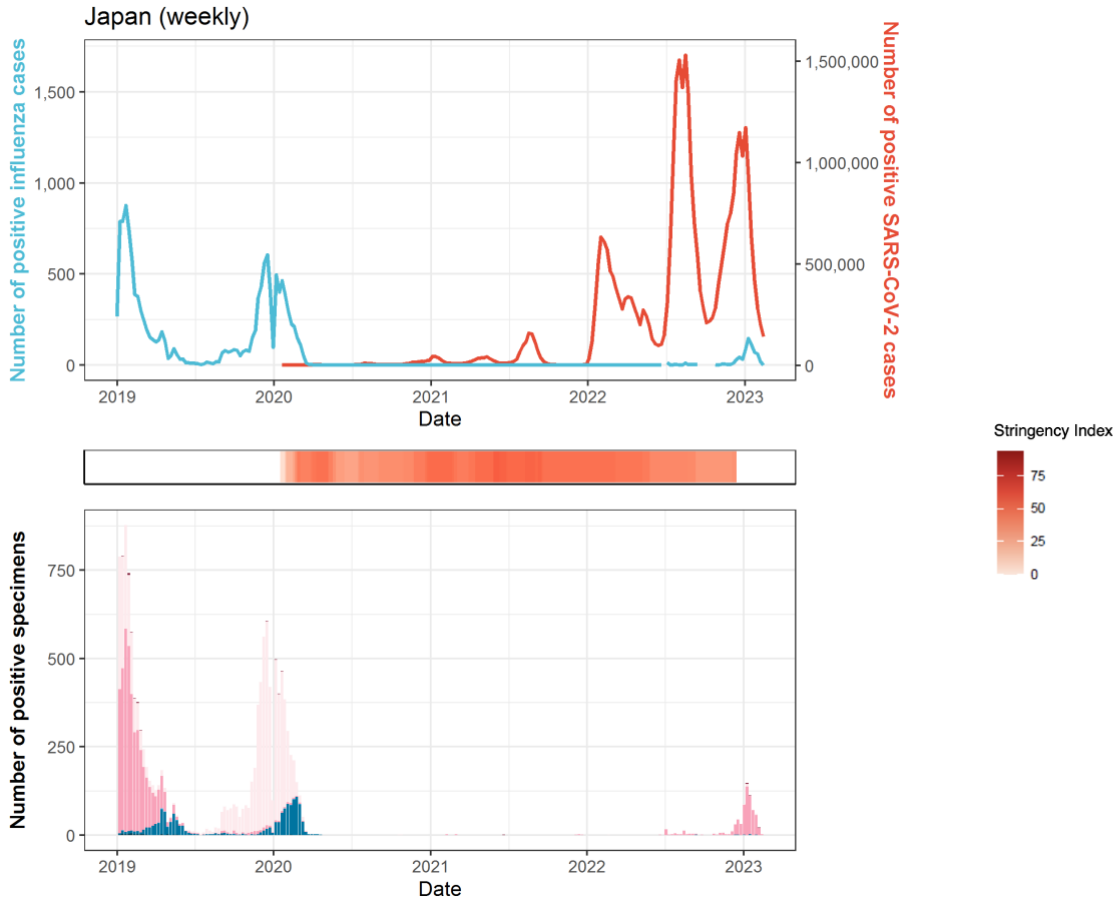
China



Percentage of specimens testing positive for influenza in different seasons

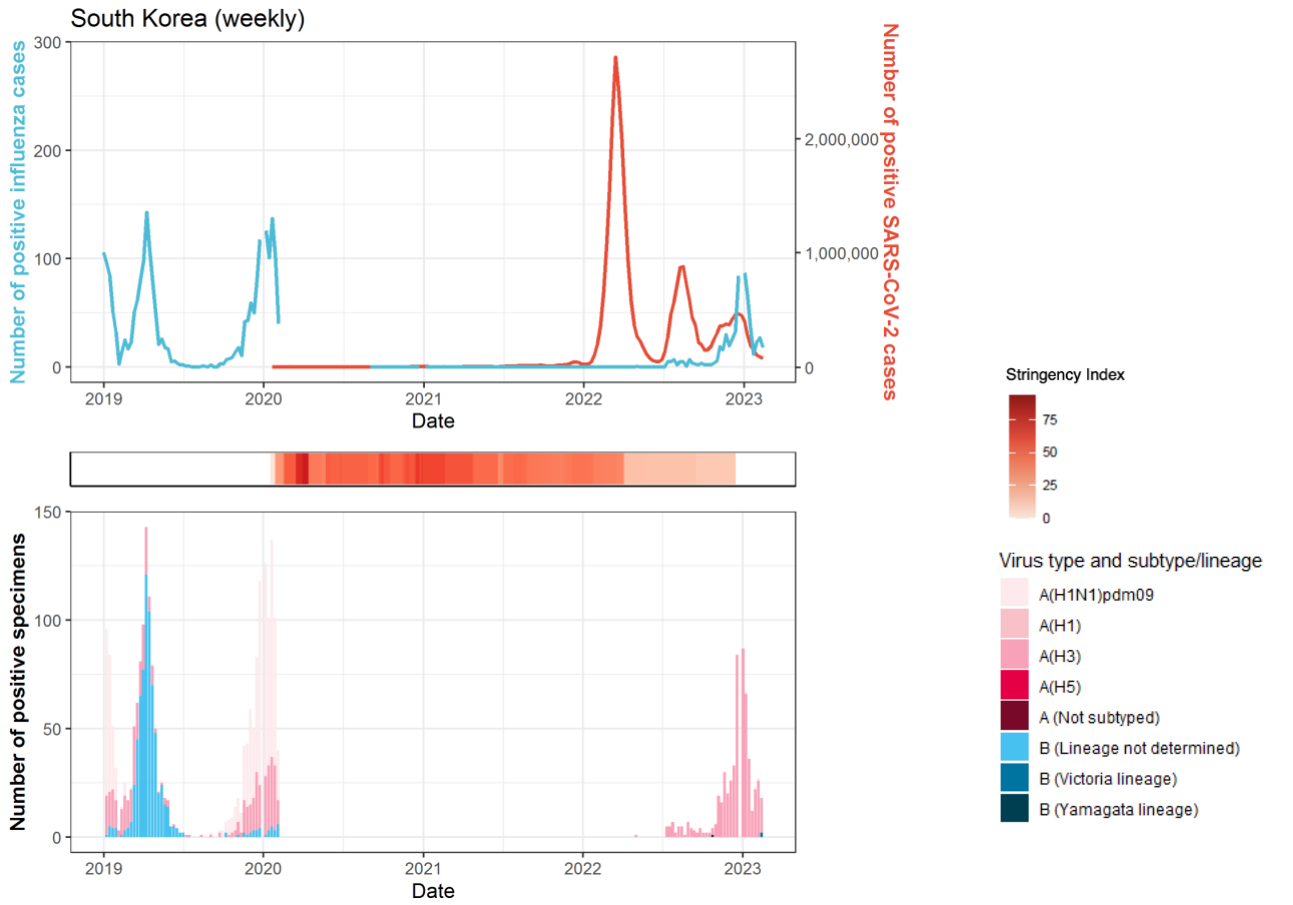


Japan

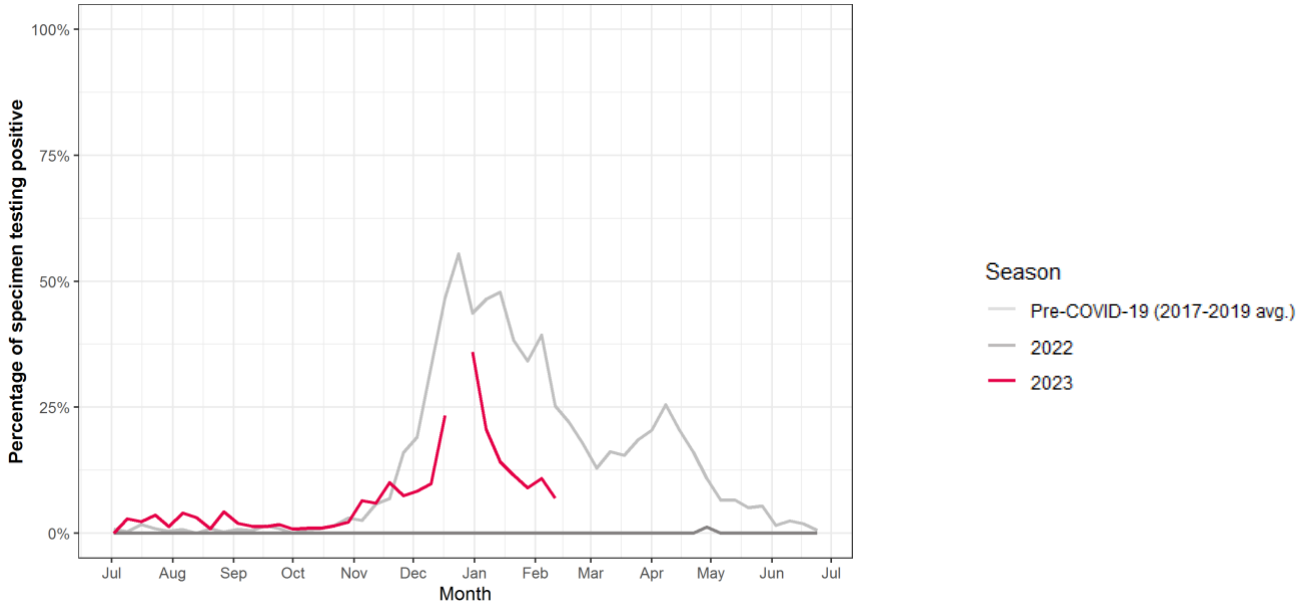


Percentage of specimens testing positive for influenza in different seasons: data not available

South Korea

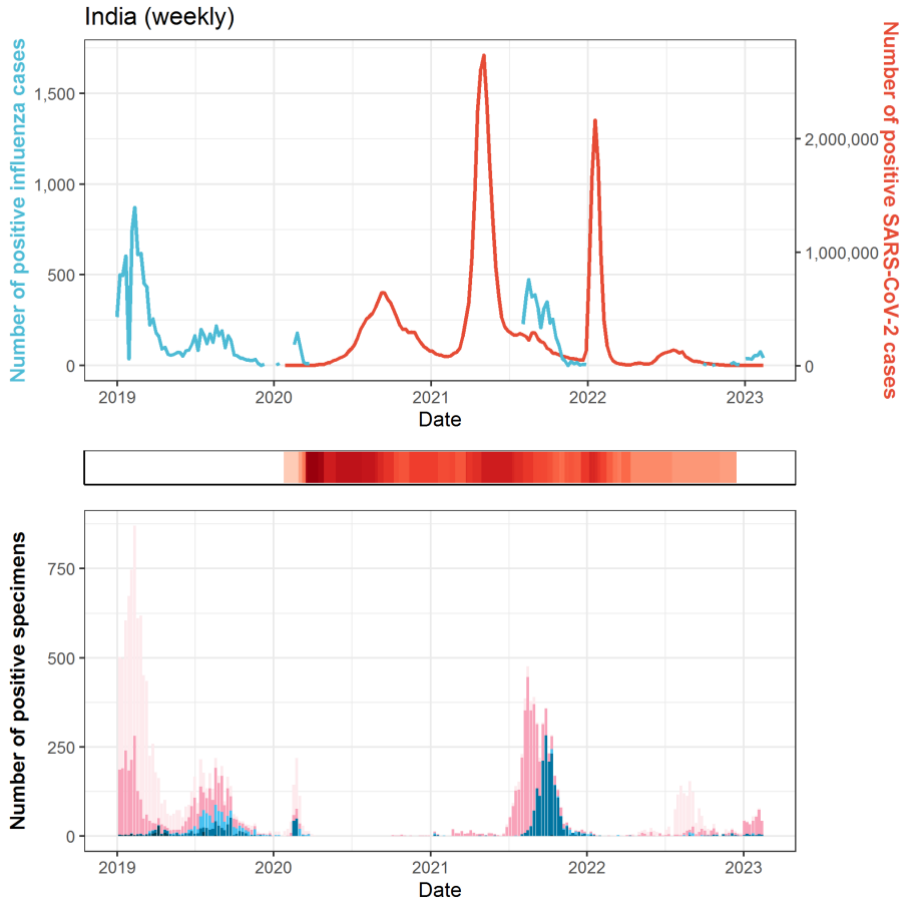


Percentage of specimens testing positive for influenza in different seasons

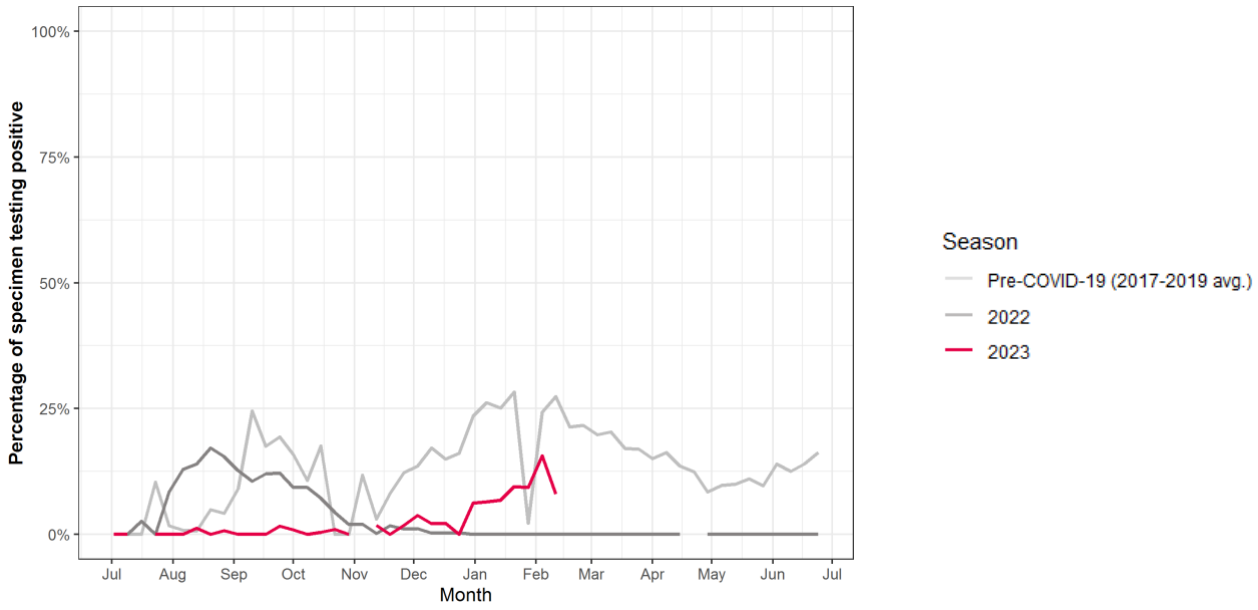


Southern Asia

India

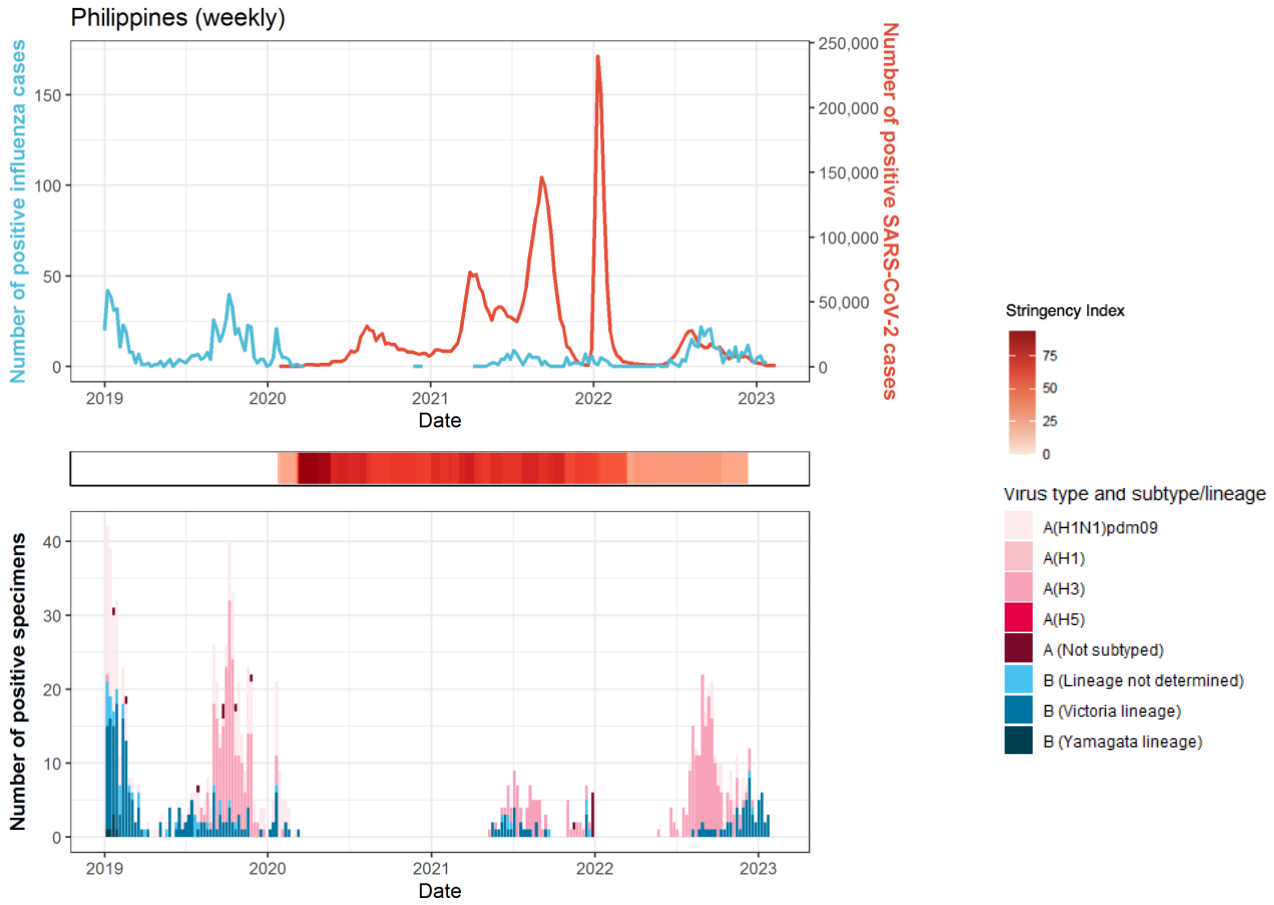


Percentage of specimens testing positive for influenza in different seasons



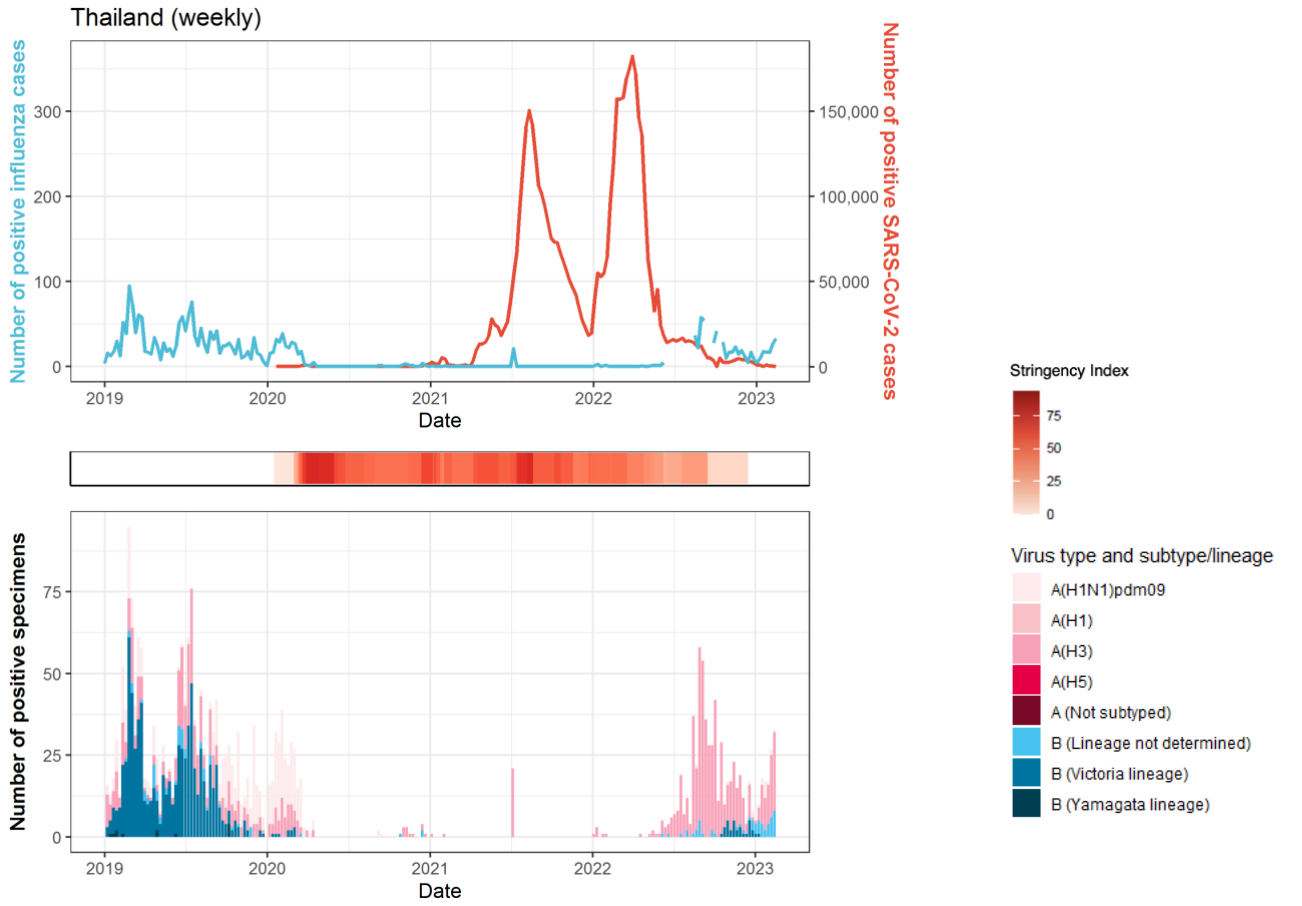
South-East Asia

Philippines

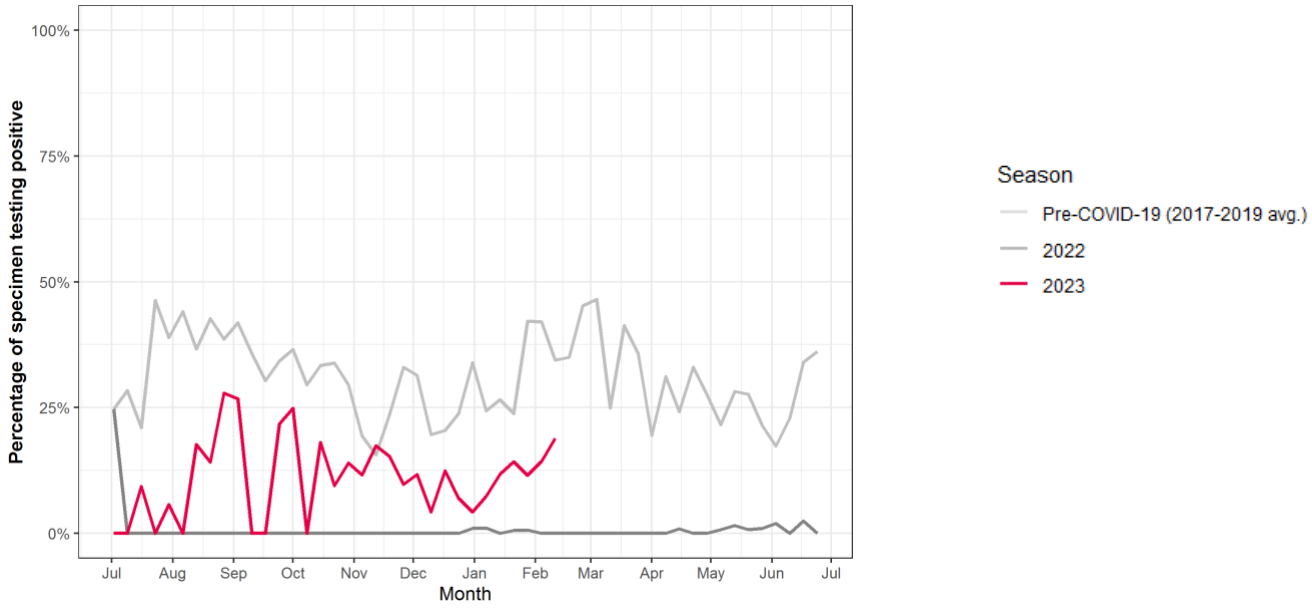


Percentage of specimens testing positive for influenza in different seasons: data not available

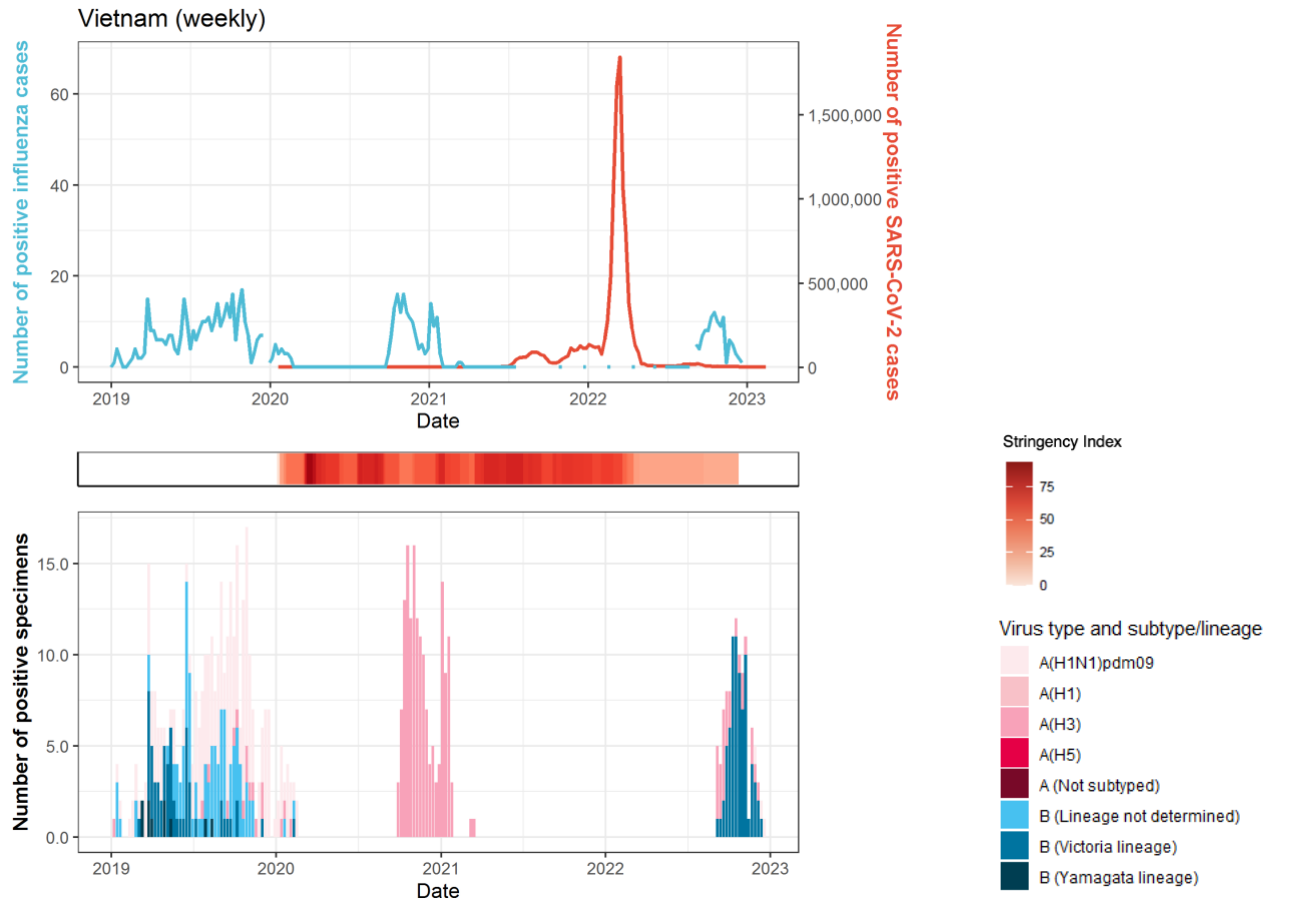
Thailand



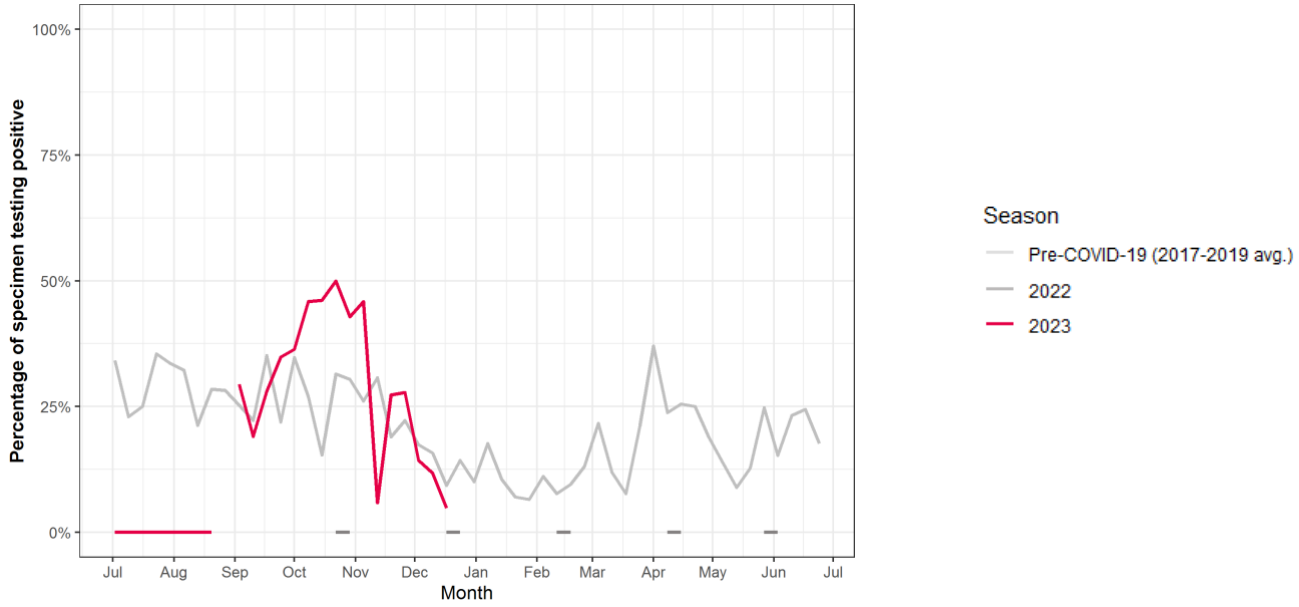
Percentage of specimens testing positive for influenza in different seasons



Vietnam

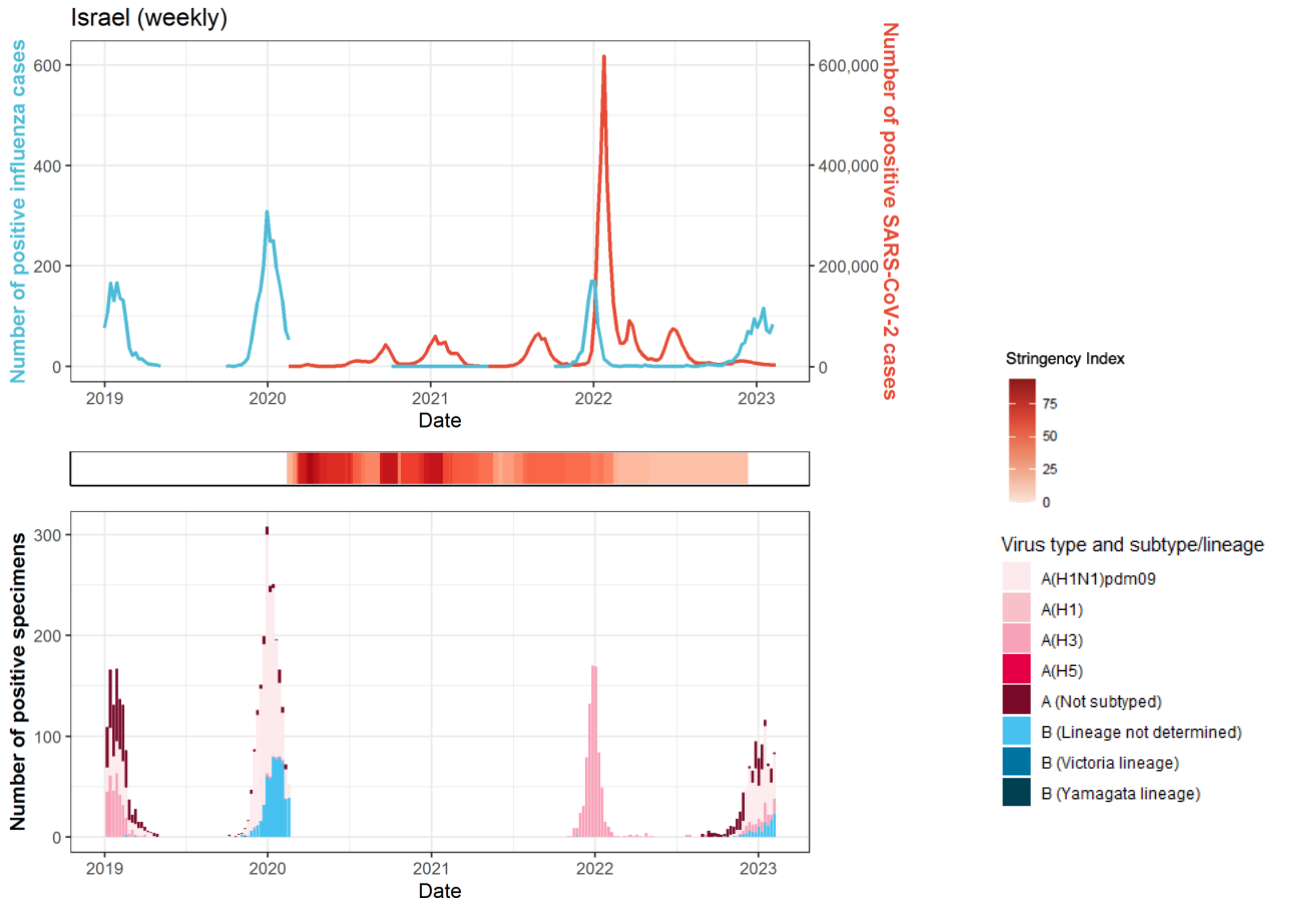


Percentage of specimens testing positive for influenza in different seasons

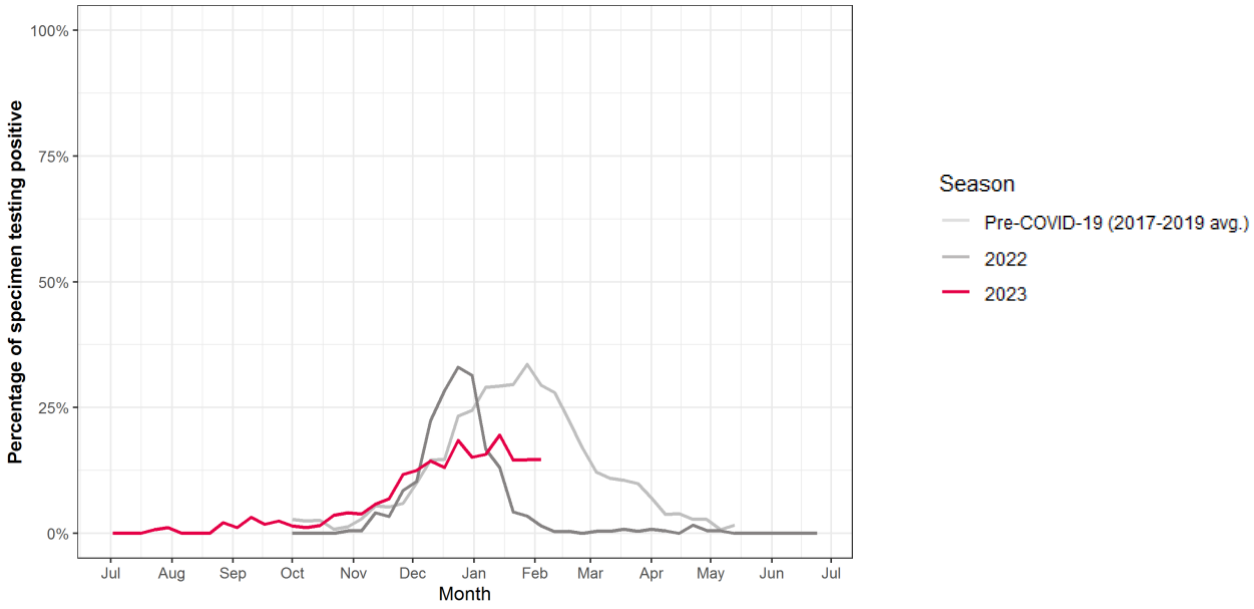


Western Asia

Israel

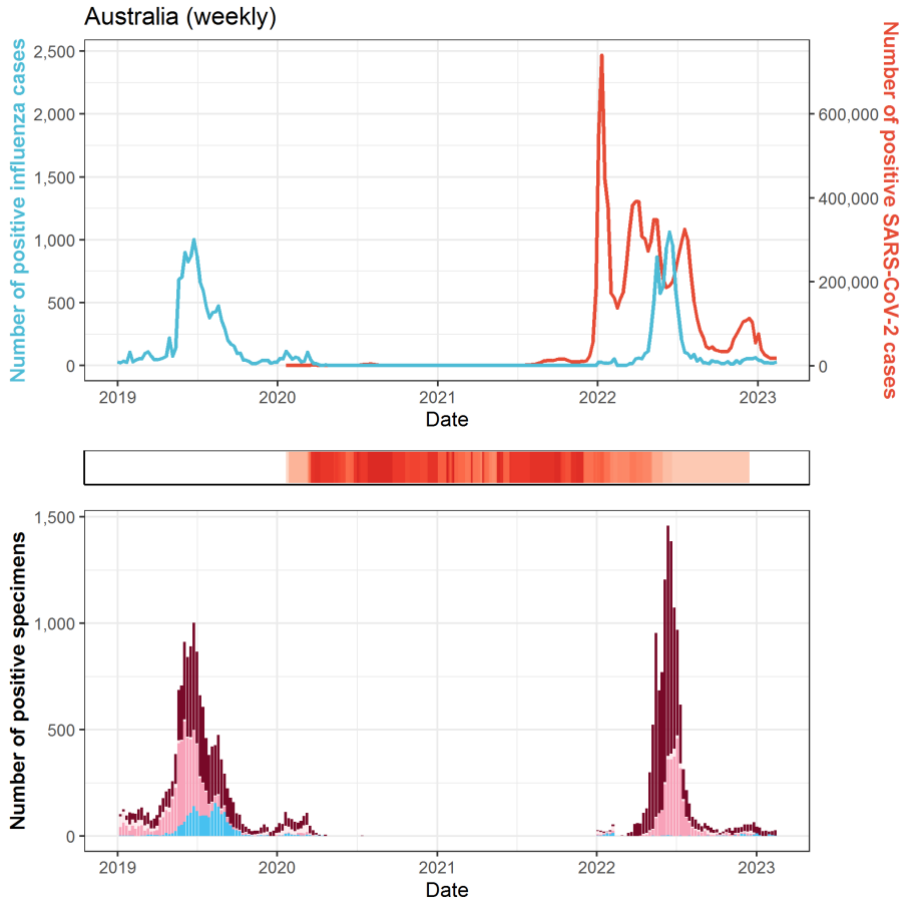


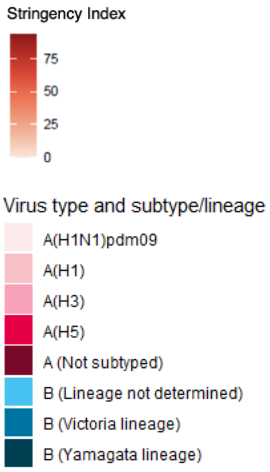
Percentage of specimens testing positive for influenza in different seasons



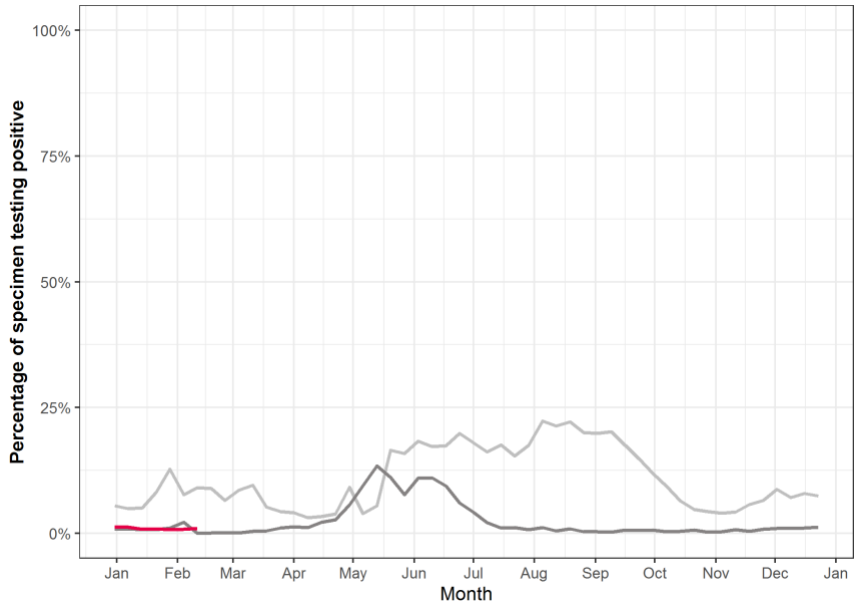
Oceania

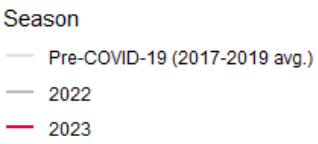
Australia





Percentage of specimens testing positive for influenza in different seasons





Absolute numbers per country

Country	Year	Cases[a] of SARS-CoV-2	+/- since last month[b]	Cases[a] of influenza	+/- since last month[b]	Week of last influenza update
Australia	2019			12,404		
Australia	2020	28,425		784		
Australia	2021	397,071		7		
Australia	2022	10,735,641		8,650		
Australia	2023	234,873	70,915	244	112	2023-07
Brazil	2019			3,320		
Brazil	2020	770,028		1,314		
Brazil	2021	14,485,929		1,183		
Brazil	2022	14,039,578		3,648		
Brazil	2023	722,582	228,356	189	120	2023-07
Canada	2019			43,196		
Canada	2020	590,249		44,956		
Canada	2021	1,633,486		337		
Canada	2022	2,297,368		71,314		
Canada	2023	97,664	38,692	4,246	1,033	2023-07
China	2019			122,757		
China	2020	93,153		31,164		
China	2021	21,489		10,145		
China	2022	1,840,903		52,705		
China	2023	67,833	0	8,675	8,508	2023-07
Egypt	2019			1,998		
Egypt	2020	138,062		659		
Egypt	2021	247,513		233		
Egypt	2022	130,070		2,709		
Egypt	2023	53	53	143	0	2023-04
France	2019			25,405		
France	2020	2,735,590		16,589		
France	2021	7,706,191		3,071		
France	2022	29,345,799		40,014		
France	2023	328,259	97,963	12,387	6,151	2023-07
Germany	2019			1,215		
Germany	2020	1,719,737		958		
Germany	2021	5,389,445		29		
Germany	2022	30,260,684		1,923		
Germany	2023	799,042	389,075	242	149	2023-07
India	2019			9,698		
India	2020	10,286,709		457		
India	2021	24,574,870		4,085		
India	2022	9,820,232		76		
India	2023	9,189	3,717	414	246	2023-07
Israel	2019			1,796		
Israel	2020	423,290		1,424		
Israel	2021	961,872		456		
Israel	2022	3,379,744		774		
Israel	2023	35,598	13,094	511	152	2023-06

Country	Year	Cases[a] of SARS-CoV-2	+/- since last month[b]	Cases[a] of influenza	+/- since last month[b]	Week of last influenza update
Italy	2019			2,787		
Italy	2020	2,107,314		7,484		
Italy	2021	4,018,517		31		
Italy	2022	19,018,022		5,817		
Italy	2023	433,147	123,063	1,347	534	2023-07
Japan	2019			10,343		
Japan	2020	235,747		2,915		
Japan	2021	1,497,558		9		
Japan	2022	27,501,370		204		
Japan	2023	3,992,553	672,183	504	84	2023-07
Mexico	2019			6,963		
Mexico	2020	1,426,094		4,799		
Mexico	2021	2,553,629		960		
Mexico	2022	3,255,892		10,314		
Mexico	2023	216,962	83,177	925	178	2023-07
Netherlands	2019			5,166		
Netherlands	2020	806,620		3,235		
Netherlands	2021	2,346,892		471		
Netherlands	2022	5,426,571		14,863		
Netherlands	2023	27,090	13,802	6,394	3,128	2023-07
Philippines	2019			612		
Philippines	2020	474,064		52		
Philippines	2021	2,369,926		105		
Philippines	2022	1,221,098		260		
Philippines	2023	11,894	3,104	16	0	2023-06
Poland	2019			1,786		
Poland	2020	1,294,878		1,282		
Poland	2021	2,813,337		2		
Poland	2022	2,260,264		1,604		
Poland	2023	51,001	40,089	1,266	241	2023-07
South Africa	2019			1,164		
South Africa	2020	1,057,161		157		
South Africa	2021	2,382,539		413		
South Africa	2022	590,916		1,171		
South Africa	2023	14,371	7,607	14	6	2023-07
South Korea	2019			1,702		
South Korea	2020	61,768		505		
South Korea	2021	573,484		0		
South Korea	2022	28,481,547		295		
South Korea	2023	1,409,212	328,946	284	82	2023-07
Spain	2019			16,580		
Spain	2020	1,938,671		8,827		
Spain	2021	4,440,910		2,206		
Spain	2022	7,391,148		16,841		
Spain	2023	79,078	31,858	3,540	2,201	2023-07
Thailand	2019			1,568		
Thailand	2020	6,882		297		
Thailand	2021	2,216,551		23		
Thailand	2022	2,507,715		465		
Thailand	2023	6,227	1,051	127	77	2023-07

Country	Year	Cases[a] of SARS-CoV-2	+/- since last month[b]	Cases[a] of influenza	+/- since last month[b]	Week of last influenza update
United Kingdom	2019			42,447		
United Kingdom	2020	2,488,780		14,369		
United Kingdom	2021	10,456,330		2,755		
United Kingdom	2022	10,353,762		26,893		
United Kingdom	2023	235,070	95,793	4,219	545	2023-07
United States	2019			268,524		
United States	2020	20,219,873		229,766		
United States	2021	34,687,812		39,507		
United States	2022	45,857,399		460,297		
United States	2023	2,674,018	1,076,502	28,621	5,185	2023-07
Vietnam	2019			355		
Vietnam	2020	1,465		146		
Vietnam	2021	1,729,792		39		
Vietnam	2022	9,235,034		103		
Vietnam	2023	1,686	420	0	0	2022-51

[a] Laboratory-confirmed cases.

[b] Influenza cases are reported by FluNet on a weekly basis. To convert these data to months, weekly data are assigned to the month most days in that week belong to. SARS-CoV-2 cases are reported per day and assigned to each month by date. +/- since last month includes all cases over the last full calendar month.

Methodology

Background

After assessment of alarming levels of spread and severity of SARS-CoV-2 virus, on March 11, 2020, WHO declared COVID-19 a pandemic [9]. The emergence of this new virus has had a major impact on the global circulation of respiratory viruses, including influenza and RSV [10]. The FluCov project aims to understand and communicate the impact of COVID-19 on: i) influenza activity and ii) prevention and control measures (e.g. vaccination) in the coming years.

Scope

The countries included in this FluCov-Bulletin are distributed over the Americas (North, Central and Tropical South), Europe (Northern, South West and Eastern), Africa (Northern and Southern), Asia (Eastern, Southern, South East and Western) and Oceania. These data are compared to the prevention and control measures applied in each country using the Stringency Index from the Oxford COVID-19 Government Response Tracker (OxCGRT) [11].

Data sources

- **Influenza**: FluNet [3] is a global web-based tool for influenza virological surveillance first launched in 1997. The virological data entered into FluNet, e.g. number of influenza viruses detected by subtype, are critical for tracking the movement of viruses globally and interpreting the epidemiological data. The data are provided remotely by National Influenza Centres (NICs) of the Global Influenza Surveillance and Response System (GISRS) and other national influenza reference laboratories collaborating actively with GISRS or are uploaded from WHO regional databases.
- **SARS-CoV-2**: Our World in Data systematically collects COVID-19 data which is presented in their online tool [12]. We used this platform to extract data on the number of cases, as well as tests performed per country. This data is extracted both from the John Hopkins repository on daily confirmed COVID-19 [13] cases as well as various national public health institutions.
- **Government response tracker**: The Oxford COVID-19 Government Response Tracker (OxCGRT) [11] systematically collects information on several different common policy responses that governments have taken to respond to the pandemic on 20 indicators such as school closures and travel restrictions. It now has data from more than 180 countries. OxCGRT data is downloaded directly from the Our World in Data platform.

Extraction details

Data were extracted on 5 March 2023 and cover the period 1 January 2019 to 4 March 2023. Data from both platforms are regularly updated and **sometimes retrospectively corrected**. This might explain any discrepancies between our reported figures and the data published online, even when using data for the exact same period. In case of any unclarities or perceived irregularities, feel free to contact us at flucov@nivel.nl.

References

[1]Bulletin épidémiologique grippe, semaine 8. Saison 2022-2023. https://www.santepubliquefrance.fr/maladies-et-traumatismes/maladies-et-infections-respiratoires/grippe [accessed 8 March 2023]

[2] SiVIRA. Vigilancia centinela de Infección Respiratoria Aguda en Atención Primaria (IRAs) y en Hospitales (IRAG) Gripe, COVID-19 y otros virus respiratorios, Semana 8 de 2023. Páginas - Temporada_Gripe_2022-23 (isciii.es) [accessed 8 March 2023]

[3] WHO. FluNet. https://www.who.int/tools/flunet [accessed 8 March 2023]

[4] Flu Cases Surge in China. Bloomberg. http://bit.ly/420K5FK [accessed 8 March 2023]

[5] Paget J, Caini S, Del Riccio M, van Waarden W, Meijer A. Has influenza B/Yamagata become extinct and what implications might this have for quadrivalent influenza vaccines? Euro Surveill. 2022 Sep;27(39):2200753. doi: 10.2807/1560-7917.ES.2022.27.39.2200753.

[6] Influenza B epidemic in Malaysia. https://twitter.com/PagetPhd/status/1633399151848292352?s=20

[7] Caini S, Andrade W, Badur S, Balmaseda A, Barakat A, Bella A, et al. Temporal Patterns of Influenza A and B in Tropical and Temperate Countries: What Are the Lessons for Influenza Vaccination? PLoS ONE 2016 11(3): e0152310. doi:10.1371/journal.pone.0152310

[8] China reports new H5N1 avian flu cases. https://rb.gy/epupy4 [accessed 8 March 2023]

[9] WHO. Listing of WHO's response to COVID-19. https://bit.ly/3mIMtRi [accessed 1 July 2022]

[10] WHO. Influenza Update N° 416. http://bit.ly/3T5SvHV [accessed 7 April 2022]

[11] Oxford COVID-19 Government Response Tracker, Blavatnik School of Government, University of Oxford. http://bit.ly/41WqmqX [accessed 16 June 2021]

[12] Ritchie, H., Ortiz-Ospina, E., Beltekian, D., Mathieu, E., Hasell J., Macdonald B. et al. Coronavirus Pandemic (COVID-19). https://ourworldindata.org/coronavirus [accessed 15 June 2021]

[13] COVID-19 Dashboard, Center for Systems Science and Engineering, Johns Hopkins University. https://coronavirus.jhu.edu/map.html [accessed 15 June 2021]

Project Team

Nivel, Netherlands: Marco Del Riccio, Bronke Boudewijns, Willemijn van Waarden, Saverio Caini John Paget

Global Influenza Initiative:

Ben Cowling, School of Public Health, University of Hong Kong, Hong Kong

Ann Falsey, Rochester General Hospital, University of Rochester School of Medicine, Rochester, NY

Angele Gentile, Ricardo Gutiérrez Children's Hospital, Buenos Aires

Jan Kyncl, Department of Infectious Diseases Epidemiology, National Institute of Public Health, Prague

Bruno Lina: Virpath Laboratory, University of Lyon, Lyon

Raina McIntyre: The Kirby Institute, University of New South Wales, Sydney

Global Influenza Initiative

Sanofi, France: Erica Dueger, Clotilde El Guerche-Séblain, Meral Akçay, Cecile Eymin

Websites

Project Website: https://www.nivel.nl/en/flucov

FluCoV Dashboard: https://www.nivel.nl/en/dossier-epidemiology-respiratory-viruses/flucov-dashboard

Funding

The FluCov Project is funded by Sanofi, France.