



Probable extinction of influenza B/Yamagata and its public health implications: a systematic literature review and assessment of global surveillance databases

CONTEXT

Influenza viruses of the B/Yamagata lineage have only been detected in a few countries globally since the start of the COVID-19 pandemic in March 2020

In this study, the circulation of B/Yamagata influenza viruses from 2020 onwards was investigated, to understand whether these viruses are extinct and consider the public health implications of the findings¹

STUDY AIM

To conduct an updated systematic review of the evidence pertaining to global B/Yamagata influenza virus circulation, building on previous assessments by including multiple data sources¹



METHODS

The study methodology, conducted in January 2024, utilised 3 different types of data sources to search for B/Yamagata influenza viruses:¹



A systematic review of the literature published between 1 January 2020 – 2 January 2024 using the PubMed and Embase databases



A search of **four influenza surveillance databases** – FluNet, GISHN, GISAID and GenBank, for data reported during the period 2020–2023



A review of the **webpages of national respiratory virus surveillance systems** of 21 countries* for data reported during the period 2020–2023

*Argentina, Australia, Brazil, Canada, China, England, France, Germany, Hong Kong, Israel, Italy, Japan, Mexico, New Zealand, Portugal, Russia, South Africa, Spain, the Netherlands, Türkiye, US.

KEY FINDINGS¹

Literature review

The literature search returned **5152** non-duplicate articles of which **43** were suitable for inclusion

In studies with observation periods from May 2020 through July 2023, **B/Yamagata detections were reported in:**

only **4 countries** globally

<2 in 1000 of all **influenza B** cases reported

Influenza database findings

FluNet

From **2,376,287** reported influenza detections between 2020 and 2023:

435,250 (18.3%) were influenza type B

Among these **influenza type B** detections:

297,915 (68.4%) were not characterised

137,015 (31.5%) were B/Victoria lineage

320 (<0.1%) were of B/Yamagata lineage

The average number of **influenza B/Yamagata detections per 100,000 processed specimens** dropped from:

14.9 in weeks 1–17 of 2020

to **<0.10** in 2022 and 2023

GISHN

From **9,204** influenza detections reported to GISHN between 2020 and 2023:

2168 (23.6%) were influenza type B

Among **1030 influenza type B** viruses that were characterised:

seven (0.7%) were B/Yamagata, all detected during 2020

No B/Yamagata influenza detections were reported from 2021 onwards

GISAID and GenBank

No sequences of wild-type viruses of the B/Yamagata lineage with a collection date **after March 2020** were found in the GISAID and GenBank databases

National respiratory virus surveillance system webpages

Twelve B/Yamagata detections were reported after week 35 of 2020:

1 in Australia (week 37–38 of 2020)

10 in the US (weeks 44–49 of 2021)

1 in Spain (in 2023; with a sequence identical to the **live attenuated vaccine strain**)



The current protracted and nearly undetectable viral circulation of the B/Yamagata lineage provides enough evidence to suggest that these viruses are on the verge of extinction, if they are not extinct already¹



On March 5, 2024, the FDA's Vaccines and Related Biological Products Advisory Committee (VRBPAC) recommended that all 2024–2025 US flu vaccines be trivalent vaccines and include an influenza A(H1N1), an A(H3N2) and a B/Victoria-lineage vaccine virus²

To download a copy of this infographic visit the Nivel FluCov website:

[FluCov: Influenza-COVID-19, understanding and communicating the impact of COVID-19 on influenza activity | Nivel](#)

COVID-19, coronavirus disease 2019; GISHN, Global Influenza Hospital Surveillance Network; GISAID, Global Initiative on Sharing All Influenza Data.

References: 1. Caini S, et al. Probable extinction of influenza B/Yamagata and its public health implications: a systematic literature review and assessment of global surveillance databases. Lancet Microbe 2024:S2666–5247(24)00066–1. 2. Influenza (flu). [US Will Transition to Trivalent Flu Vaccines for 2024-2025 | CDC](#). Accessed July 2024.