Influenza Updates

The newsletter of the WHO Collaborating Centre for Reference and Research on Influenza in Melbourne

@WHOCCFluMelb

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WHO Recommendations for the Southern Hemisphere 2026 Influenza Vaccines

The WHO Consultation on the Composition of Influenza Vaccines for the Southern Hemisphere 2026 was held in Sapporo, Japan between 22-25 September 2025.

Following the Consultation, the WHO made the following recommendations:

The WHO recommends that **trivalent** vaccines for use in the 2026 southern hemisphere influenza season contain the following:

Egg-based vaccines

- an A/Missouri/11/2025 (H1N1)pdm09-like virus;
- an A/Singapore/GP20238/2024 (H3N2)-like virus; and
- a B/Austria/1359417/2021 (B/Victoria lineage)-like virus.

Cell culture-, recombinant protein- or nucleic acid-based vaccines

- an A/Missouri/11/2025 (H1N1)pdm09-like virus;
- an A/Sydney/1359/2024 (H3N2)-like virus; and
- a B/Austria/1359417/2021 (B/Victoria lineage)-like virus

Consistent with the four previous WHO recommendations since September 2023, it remains the opinion of the WHO influenza vaccine composition advisory committee that the inclusion of a B/Yamagata lineage antigen is no longer warranted.

Quadrivalent vaccines, where the transition to trivalent vaccines is not yet complete, contain a 4th component – a B/Yamagata lineage virus (B/Phuket/3073/2013-like virus).

There will no longer be updated recommendations for the B/Yamagata lineage component.

WHO has also updated recommendations for the development of new candidate vaccine viruses for zoonotic influenza, with a view on pandemic preparedness.

More details about the recommendations can be found here. *Recommendations*

AIVC recommendation for the composition of influenza vaccine for Australia in 2026

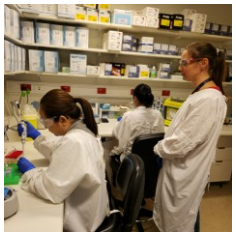
The Australian Influenza Vaccine Committee (AIVC) met on 8 October 2025 to recommend the composition of the influenza virus vaccines for the 2026 southern hemisphere influenza season and the committee has accepted the WHO recommendation. The full statement is available on the Centre's website.

Contribution of National Influenza Centres to the vaccine recommendations

We thank everyone who has sent us influenza samples prior to the Consultation. Your viruses provide essential data on recently circulating strains and help to inform the choice of recommended vaccine strains.

In this context, we would like to acknowledge the contribution and critical role played by WHO National Influenza Centres and other submitting laboratories in providing influenza samples to WHO Collaborating Centres, not only for the purposes of analysis and surveillance, but also for the provision of potential vaccine candidates. Please continue to send us your samples. The need for constant surveillance remains as influenza viruses continue to circulate and evolve.

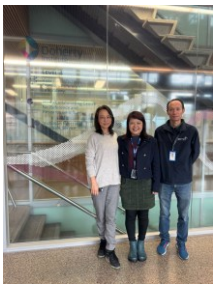
Centre Training Activities



Heidi Peck, Malet Aban, Tasoula Zakis, Paul Whitney and **Michelle Wille** were involved in training scientists from the Research Institute for Tropical Medicine, Philippines between 5 - 16 May 2025. The training covered topics such as mammalian cell culture, influenza virus isolation and influenza virus serology.

Michelle Wille, Presa Chanthalavanh and **Steven Edwards** were involved in training six scientists from Pacific Island countries between 26 May - 5 June 2025. Visiting scientists were from Fiji CDC and Labasa Hospital in Fiji, Central Public Health Laboratory in Papua New Guinea, Viola Hospital in Tonga, Vila Central Hospital in Vanuatu and Tungaru Central Hospital in Kiribati. Training was performed in collaboration with colleagues at VIDRL and focused on molecular detection and characterisation of influenza viruses.

Heidi Peck and **Malet Aban** were involved in training a PhD student from the National Institute for Communicable Diseases, South Africa between 21 July - 5 August 2025. The training covered topics such as laboratory methods for measuring neutralising antibodies against influenza viruses in human sera.



Yi Mo Deng and **Xiaomin Dong** were involved in training a scientist from the Chinese Centre for Disease Control and Prevention, Beijing between 27 April to 29 May 2025. The training primarily focused on genetic analysis on viruses, and in particular on whole-genome sequencing of human metapneumovirus

Laboratory Visits

Patrick Reading and **Michelle Wille** joined a mission team to assess the two National Influenza Centres in Viet Nam at the National Institute of Hygiene and Epidemiology (NIHE) in Ha Noi and the Pasteur Institute in Ho Chi Minh City (PIHCMC), as well as the national influenza surveillance network in Viet Nam from 9 -13 June 2025 . The review included self-assessment, site visits and subsequent review of NIC functions and meetings with key ministerial stakeholders. The mission team also visited Oxford University Clinical Research Unit (OUCRU) and the Hospital for Tropical Diseases (HTD) in Ho Chi Minh City.

Recent Publications

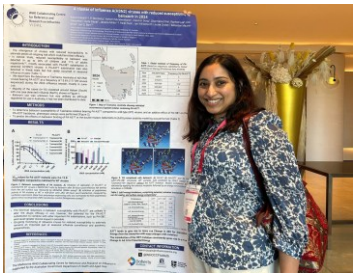
Diefenbach-Elstob T, Chilver MB, **Spirkoska V,** Carville KS, **Dapat C,** Turra M, Tran T, **Deng YM, Peck H, Barr IG,** Stocks N, Sullivan SG. Influenza Vaccine Effectiveness in Australia During 2017-2019. Influenza Other Respir Viruses. 2025 Jul;19(7):e70137. doi: 10.1111/irv.70137. PMID: 40669846; PMCID: PMC12266806.

Farrukee R, Mordant F, Mackenzie-Kludas C, Mesner D, Yamomoto M, Jolly C, Brooks AG, **Subbarao K,** Londrigan SL, **Reading PC.** Human guanylate-binding protein (GBP) 1 inhibits replication of severe acute respiratory syndrome coronavirus 2. J Virol. 2025 Sep 15:e0082325. doi: 10.1128/jvi.00823-25. Epub ahead of print. PMID: 40952259.

Hussain S, Meijer A, Govorkova EA, **Dapat C**, Gubareva LV, **Barr IG,** Brown SK, Daniels RS, Fujisaki S, Galiano M, Huang W, Kondor RJ, Lackenby A, Lewis N, Lo J, Nguyen HT, Patel MC, Pereyaslov D, Rattigan A, Samaan M, Wang D, Webby RJ, Yen HL, Zhang W, Takashita E. Global update on the susceptibilities of influenza viruses to neuraminidase inhibitors and the cap-dependent endonuclease inhibitor baloxavir, 2020-2023. Antiviral Res. 2025 Sep;241:106217. doi: 10.1016/j.antiviral.2025.106217. Epub 2025 Jun 24. PMID: 40571063; PMCID: PMC12391581.

Highlights from the recent ISRV Meeting

Ian Barr and Saira Hussain attended ISRV's 8th Antiviral group (AVG) and 3rd International Monitoring for Respiratory Pathogens (IMRP) meeting on 17-20th September 2025 in Singapore. Ian Barr presented a talk titled 'Overview on the Changing Landscape of Influenza Vaccines' and chaired a session on vaccine developments. He also participated in panel discussions on pandemic stockpiling and regulatory approaches to developing novel antivirals. Saira Hussain gave an oral presentation of work from the WHO CCRRI Antivirals Group that had been performed in collaboration with researchers from the University of Melbourne on drugs developed by Aus Bio Ltd, titled 'Development of a Novel long-acting pan Antiviral to Influenza'. She also presented a poster titled 'A cluster of influenza A(H3N2) viruses isolated from Tasmania with reduced susceptibility to baloxavir in 2024'.



Recent activities at the Centre (1 May — 30 September 2025)

Below is a summary of surveillance activities at the Centre during this recent reporting period.

Samples received:

The Centre received 7139 influenza samples from the laboratories and institutions listed below between 1 May — 30 September 2025.

AUSTRALIA: CANBERRA HOSPITAL, ICPMR WESTMEAD, PRINCE OF WALES HOSPITAL, THE CHILDREN'S HOSPITAL AT WESTMEAD, ROYAL DARWIN HOSPITAL, PATHOLOGY QUEENSLAND, PUBLIC & ENVIRONMENTAL HEALTH, FORENSIC AND SCIENTIFIC SERVICES, QUEENSLAND CHILDREN'S HOSPITAL, ROYAL BRISBANE HOSPITAL, SA PATHOLOGY, PRINCESS ALEXANDRA HOSPITAL, HOBART PATHOLOGY, ROYAL HOBART HOSPITAL, AUSTRALIAN CLINICAL LABS (ACL) , ALFRED HOSPITAL, AUSTIN PATHOLOGY, DOREVITCH PATHOLOGY, MONASH MEDICAL CENTRE, ROYAL CHILDREN'S HOSPITAL, ROYAL MELBOURNE HOSPITAL, VICTORIAN INFECTIOUS DISEASES REFERENCE LABORATORY, PATHWEST LABORATORY MEDICINE (QEII), SA PATHOLOGY, AUSTRALIAN CLINICAL LABS

BHUTAN: NATIONAL INFLUENZA CENTRE

CAMBODIA: INSTITUT PASTEUR DU CAMBODGE

COOK ISLANDS: TE MARAE ORA MINISTRY OF HEALTH

FIJI: CENTRE FOR DISEASE CONTROL

INDIA: NATIONAL INSTITUTE OF VIROLOGY, PUNE

NEPAL:NATIONAL PUBLIC HEALTH LABORATORY

NEW CALEDONIA: CENTRE HOSPITALIER DE NOUVELLE CALÉDONIE

NEW ZEALAND: WELLINGTON, INSTITUTE OF ENVIRONMENTAL SCIENCE AND RESEARCH LIMITED

PAPUA NEW GUNIEA:INSTITUTE OF MEDICAL RESEARCH

SINGAPORE: NATIONAL PUBLIC HEALTH LABORATORY

SOLOMON ISLANDS: NATIONAL REFERRAL HOSPITAL

SOUTH AFRICA: NATIONAL INSTITUTE FOR COMMUNICABLE DISEASES

SRI LANKA: MEDICAL RESEARCH INSTITUTE

THAILAND:NATIONAL INSTITUTE OF HEALTH

VANUATU: LABORATORY DEPARTMENT

Isolation of viruses in eggs:

The Centre undertakes primary isolation of selected viruses in eggs to obtain potential vaccine strains. From 1 May — 30 September 2025, 19 A(H1N1)pdm09, 16 A(H3N2) and 4 B/Victoria viruses were successfully isolated in eggs at the Centre.

Recent activities at the Centre (1 May — 30 September 2025) continued

Antigenic analysis
3701 viruses analysed by haemagglutination inhibition (HI) assay

Antiviral drug susceptibility
1708 viruses analysed by neuraminidase inhibition (NAI) assay

Sequencing
2187 viruses analysed

Country of submitting laboratory	No. of viruses analysed by HI assay*			No. of viruses tested by NAI assay*			No. of viruses sequenced by NGS or Sanger sequencing*		
	A(H1N1)pdm09	A(H3N2)	B/Victoria	A(H1N1)pdm09	A(H3N2)	B/Victoria	A(H1N1)pdm09	A(H3N2)	B/Victoria
Australia	2259	197	583	961	27	195	1301	140	500
Bhutan	3	7	11	3	5	11	3	8	11
Brunei	86	6	6	28	3	2	0	1	4
Cambodia	40	8	2	32	6	1	5	7	0
Cook Islands	1	0	1	1	0	1	1	0	1
Fiji	3	39	3	2	1	3	2	2	3
Nepal	1	16	4	1	14	4	1	16	1
New Caledonia	28	53	9	7	43	0	10	43	7
New Zealand	36	0	111	35	0	109	19	0	23
Papua New Guinea	0	2	0				3	1	4
Singapore	20	36	22	20	34	22	4	1	0
Solomon Islands							0	6	0
South Africa	2	27	1	0	25	1	0	4	1
Sri Lanka	12	3	8	11	3	7	18	6	8
Thailand	8	8	8	6	7	7	6	8	4
Timor-Leste	6	0	23	6	60	2	0	0	2
Vanuatu	0	0	2	0	0	2	0	0	2
	2505	**402**	**794**	**1113**	**228**	**367**	**1373**	**243**	**571**

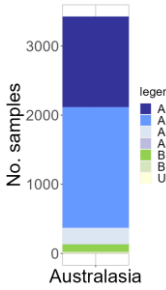
* *Subtypes and lineages are based on analysis of HA and in some cases confirmed by genetic analysis of NA.*

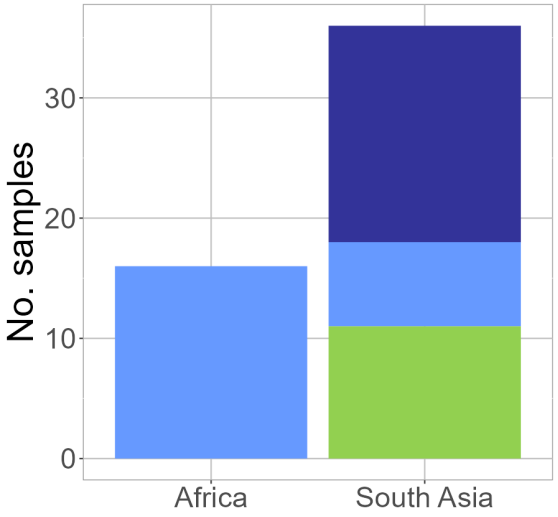
Surveillance update: Virus activity 1 May—30 September 2025

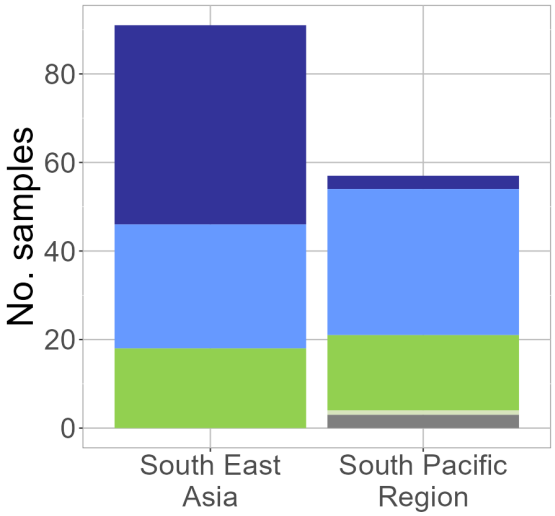
The data below are results for viruses collected between 1 May and 30 September 2025 that have been analysed at the Centre as of 1 October 2025.

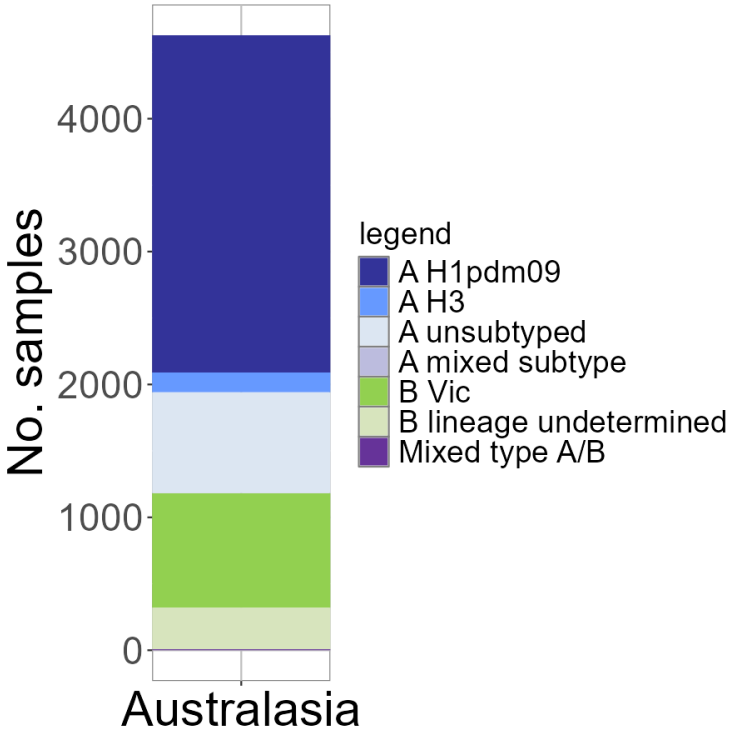
Virus types/subtypes*
The type and subtype/lineage of 4828 viruses have been determined.

53.9.1% A(H1N1)pdm09
4.8% A(H3N2)
18.8% B/Victoria









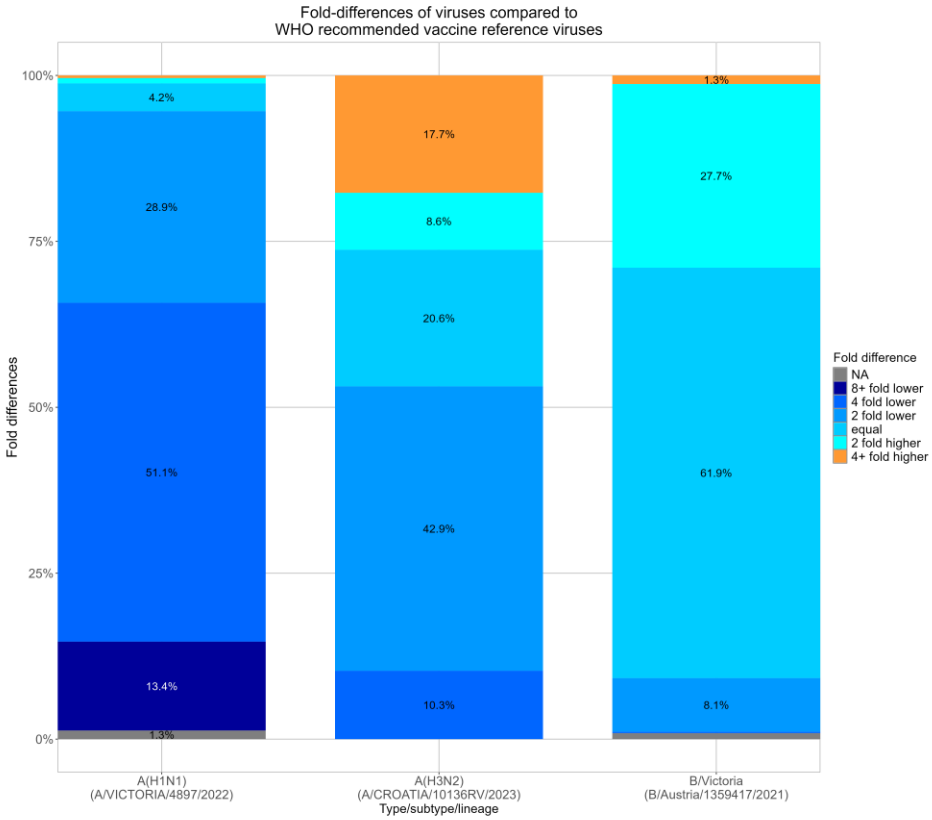
**Subtypes and lineages are based on analysis of the HA and in some cases confirmed by genetic analysis of NA.*

^The Pacific region comprises countries in Polynesia, Melanesia and Micronesia.

Antigenic analysis*

A total of 3701 viruses were tested using the haemagglutination inhibition (HI) assay.

Viruses were identified as low-reactors if their titre with reference antiserum was at least 8-fold lower than the titre of the reference virus. 13.4% of A(H1N1)pdm09 were low reactors and 51.1% were 4-fold lower. 10.3% of A(H3N2) were 4-fold lower and 42.9% were 2-fold lower. The majority (61.9%) of B/Victoria viruses were equal to the compared the relevant vaccine reference virus.



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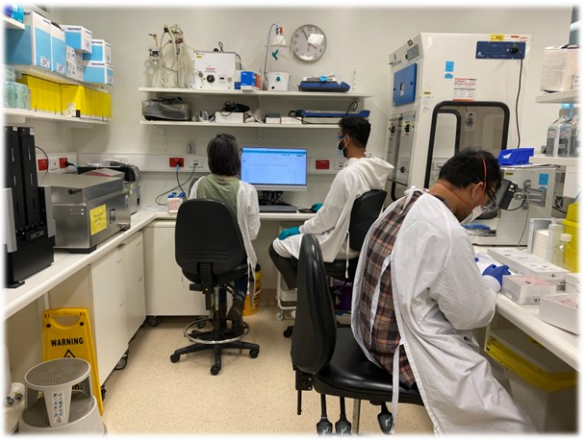
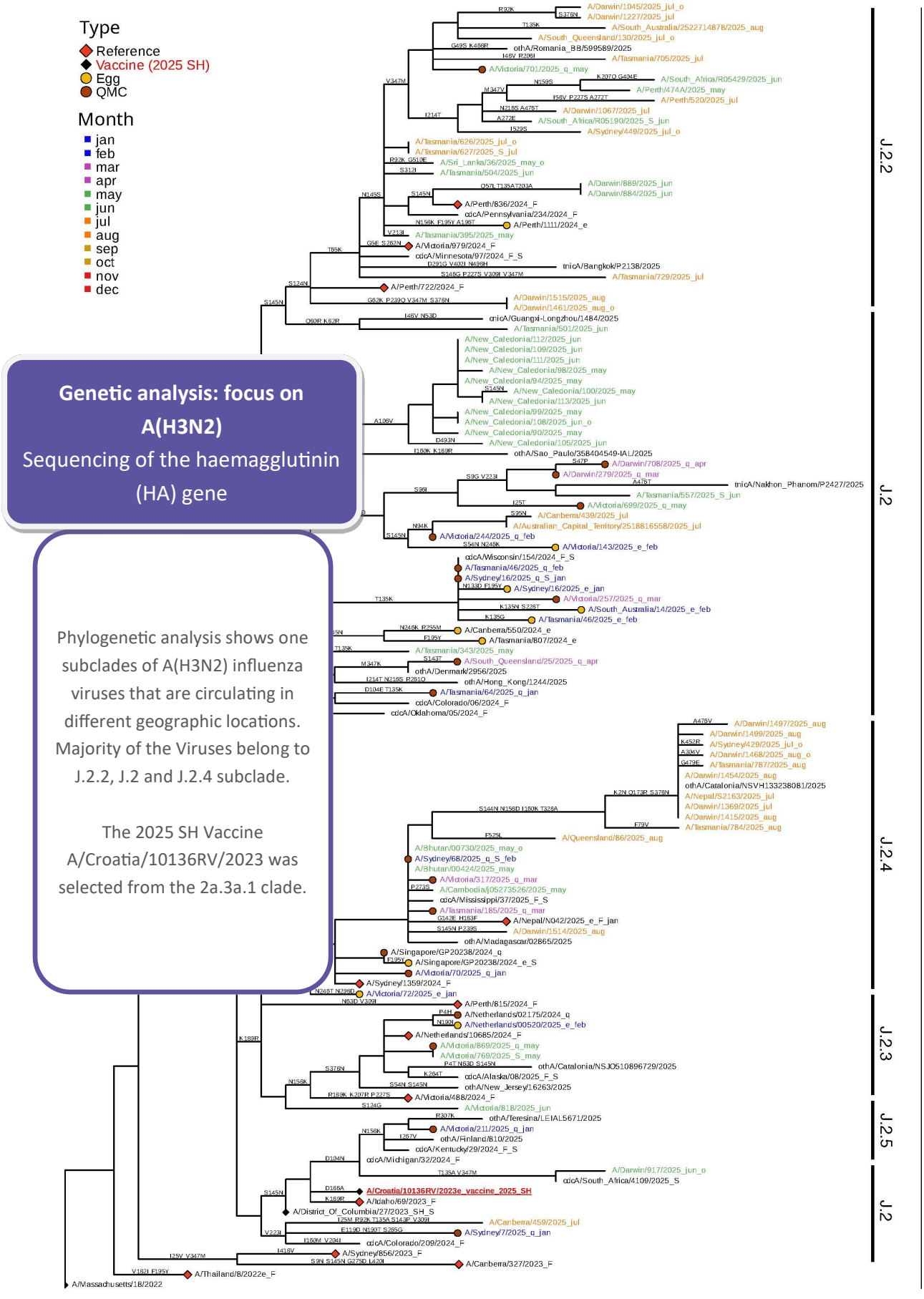


Surveillance update: Virus activity 1 May—30 September 2025 continued



Genetic analysis: focus on A(H3N2)

Sequencing of the haemagglutinin (HA) gene

Phylogenetic analysis shows one subclades of A(H3N2) influenza viruses that are circulating in different geographic locations. Majority of the Viruses belong to J.2.2, J.2 and J.2.4 subclade.

The 2025 SH Vaccine A/Croatia/10136RV/2023 was selected from the 2a.3a.1 clade.

Surveillance update: Virus activity 1 May—30 September 2025 continued

Antiviral drug susceptibility testing:
1171 viruses tested by neuraminidase inhibition (NAI) assay

Testing for susceptibility to the antiviral drugs oseltamivir (Tamiflu), zanamivir (Relenza), peramivir, and laninamivir showed that 25 viruses had highly reduced inhibition by one or more neuraminidase inhibitors (NAI).

Type/ subtype/ lineage	Oseltamivir			Peramivir			Laninamivir			Zanamivir		
	Normal inhibition	Reduced inhibition	Highly reduced Inhibition	Normal inhibition	Reduced inhibition	Highly reduced Inhibition	Normal inhibition	Reduced inhibition	Highly reduced Inhibition	Normal inhibition	Reduced inhibition	Highly reduced Inhibition
A(H1N1) pdm09	788	0	25	788	0	25	813	0	0	813	0	0
A(H3N2)	92	0	0	92	0	0	92	0	0	92	0	0
B/Victoria	266	0	0	266	0	0	266	0	0	266	0	0
Total	**1146**	**0**	**25**	**1146**	**0**	**0**	**1171**	**0**	**0**	**1171**	**0**	**0**

Viruses with reduced inhibition by antiviral drugs in the NAI assay undergo genetic analysis of the neuraminidase gene to detect mutations associated with the functional change. The relationship between reduced inhibition and the clinical effectiveness of a neuraminidase inhibitor is not well understood. Further studies would be required to determine whether a virus with reduced inhibition in the NAI assay is clinically resistant.

Viruses with highly reduced inhibition to one or more NAI

Type/subtype/lineage		Country of submitting laboratory	NAI(s) with highly reduced inhibition (marked with *)			
			Oseltamivir	Peramivir	Laninamivir	Zanamivir
A(H1N1)pdm09	A/CANBERRA/257/2025	Australia	*	*		
	A/TASMANIA/323A/2025	Australia	*	*		
	A/TASMANIA/323B/2025	Australia	*	*		
	A/SOUTHAUSTRALIA/45/2025	Australia	*	*		
	A/VICTORIA/952/2025	Australia	*	*		
	A/SOUTHQUEENSLAND/61/2025	Australia	*	*		

Viruses with highly reduced inhibition to one or more NAI

Type/subtype/lineage		Country of submitting laboratory	NAI(s) with highly reduced inhibition (marked with *)			
			Oseltamivir	Peramivir	Laninamivir	Zanamivir
A(H1N1)pdm09	A/DARWIN/959/2025	Australia	*	*		
	A/DARWIN/959A/2025	Australia	*	*		
	A/QUEENSLAND/IN001538/2025	Australia	*	*		
	A/VICTORIA/1063/2025	Australia	*	*		
	A/SOUTHQUEENSLAND/86/2025	Australia	*	*		
	A/VICTORIA/1168/2025	Australia	*	*		
	A/VICTORIA/1172/2025	Australia	*	*		
	A/VICTORIA/1191/2025	Australia	*	*		
	A/VICTORIA/1214/2025	Australia	*	*		
	A/SINGAPORE/GP6605/2025	Singapore	*	*		
	A/SYDNEY/359/2025	Australia	*	*		
	A/VICTORIA/1260/2025	Australia	*	*		
	A/VICTORIA/1261/2025	Australia	*	*		
	A/VICTORIA/1262/2025	Australia	*	*		
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