

# Influenza Updates

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

Volume 2, Issue 2, May 2013

## News and Events

### Preparation for Southern Hemisphere influenza season

The onset of winter in the Southern Hemisphere marks the start of the influenza season, and as usual we expect that the number of samples submitted to the Centre will increase in the coming months.

In the lead-up to the next WHO Consultation on the Composition of Influenza Vaccines for the Southern Hemisphere in September, please send us your samples on a regular basis as soon as possible after collection. Samples are most informative and useful when they have been collected recently. As indicated in the figure below, especially important are samples collected 6-8 weeks prior to the Consultation.

We need to receive samples by the beginning of September in order to process them in time for the 2013 WHO Southern Hemisphere Consultation. Where possible we prefer to receive viral isolates but also accept original clinical specimens. If you have any questions about shipping samples or would like information about accessing the WHO Shipping Fund, please contact us at [whoflu@influenzacentre.org](mailto:whoflu@influenzacentre.org).

### Circulation of Influenza Viruses, Western Pacific Region of WHO

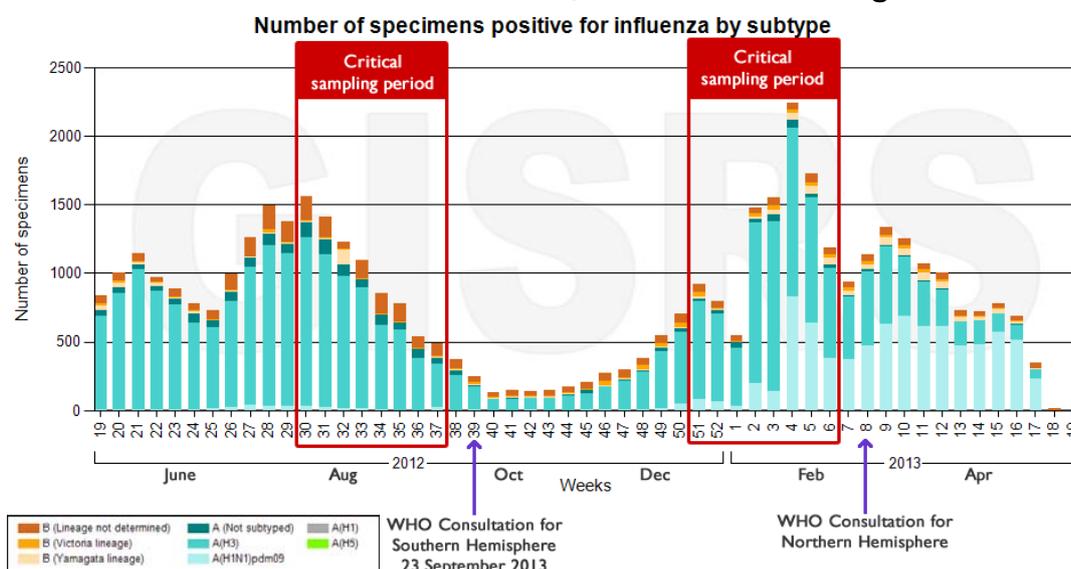


Figure adapted from FluNet: [http://www.who.int/influenza/gisrs\\_laboratory/flunet/en/](http://www.who.int/influenza/gisrs_laboratory/flunet/en/)

### Avian Influenza A(H7N9)

The Centre is actively involved in collaboration with other WHO Collaborating Centres in responding to the recent outbreak of avian influenza A(H7N9). We can assist laboratories conducting PCR diagnosis by providing avian influenza A(H7N9) RNA and relevant primer sequences on request. Influenza samples that are unsubtypeable in your own laboratory but with a strong suspicion of being avian influenza A(H7N9) viruses can be sent to the Centre for confirmation. Please contact us at [whoflu@influenzacentre.org](mailto:whoflu@influenzacentre.org) if you have any questions or would like more advice about avian influenza A(H7N9).



## Sequencing and Phylogenetic Analysis Workshop

The Centre hosted a Regional Workshop on Sequencing and Phylogenetic Analysis of Influenza Viruses from 29 April to 3 May. In total 16 participants from National Influenza Laboratories in Cambodia, Fiji, Laos, Malaysia, Mongolia, New Caledonia, New Zealand, Singapore and Vietnam attended the workshop. Staff members from the Centre were joined by other experts from Duke University in Singapore, the WHO Collaborating Centre for Reference and Research on Influenza in Japan, The University of Sydney and Monash University to provide instruction and lead sessions in practical laboratory activities, lectures and computer tutorials. Dr Frank Konings from the WHO Western Pacific Regional Office (WPRO) also attended the workshop.

Feedback from participants was very positive, indicating that they found the workshop—and especially the practical sessions—to be very informative, and that the knowledge gained would be useful on returning to their own laboratories. We are grateful to WPRO, US Centers for Disease Control and Prevention (CDC) and the Australian Government Department of Health and Ageing for their support which made the workshop possible.



**Workshop participants and faculty (From back to front, left to right):**

1. Dr Bayasgalan NAMUUTSETSEG, Patrick Reading, Aeron Hurt
2. Ian Barr, Seiichiro Fujisaki, Natalie Caldwell, Anne Kelso
3. Dr NGO Thanh Long, Hilda Lau, Frank Konings, Yi-Mo Deng
4. Naomi Komadina, Dr Darmaa BADARCH, Mr Vimatha XAYSITTHIDETH
5. Ms Judy BOCACAO, Dr Ann-Claire GOURINAT, Mr CHIN Savuth
6. Mr RITH Sareth (left of stairs), Ms PHUAH Shiau Pheng, Ms Shalini Pravin SINGH, Dr Phouvong PHOMMACHANH
7. Ms Jeyanthi SUPPIAH, Ms NGUYEN Thu Ngoc, Ms TRAN Thi Thu Huong, Simon Ho, Gavin JD Smith, Dr TO Long Thanh

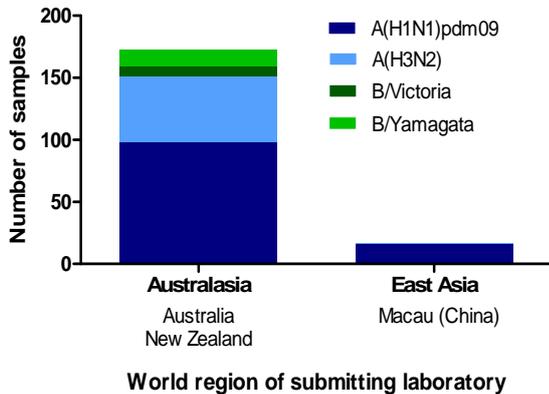


## Surveillance Update: Virus activity 1 Jan–30 April 2013

The data below shows results for viruses collected between 1 January and 30 April 2013 that have been analysed at the Centre as of 8 May, 2013.

### Virus types/subtypes<sup>†</sup>

The type and subtype/lineage of 189 viruses have been determined. The majority of viruses (60.0%) analysed to date are A(H1N1)pdm09.



### Neuraminidase inhibitor resistance

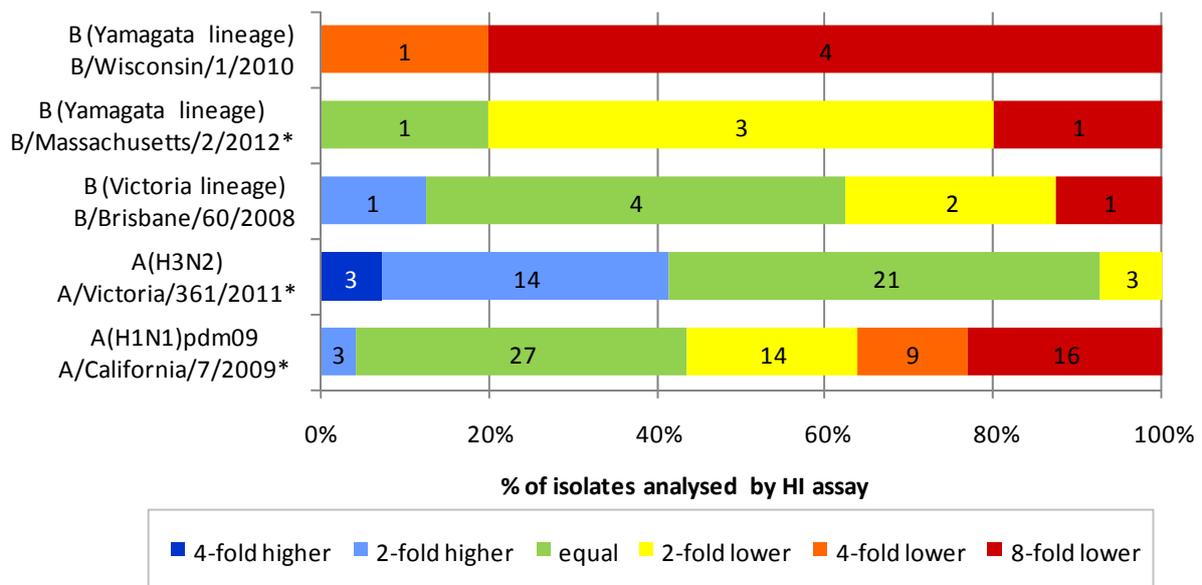
Viruses are routinely tested for their sensitivity to the antiviral drugs oseltamivir (Tamiflu) and zanamivir (Relenza) using the neuraminidase inhibitor (NAI) assay. All 133 viruses tested are sensitive to oseltamivir and zanamivir.

Viruses tested for resistance to oseltamivir and zanamivir		
Type/subtype	No. sensitive viruses	No. resistant viruses
A(H1N1)pdm09	76	0
A(H3N2)	37	0
B	20	0

<sup>†</sup> Subtypes and lineages are based on analysis of the HA and in some cases confirmed by genetic analysis of NA.

### Antigenic analysis

Haemagglutination inhibition (HI) assays indicate that most isolates are antigenically similar to current vaccine strains<sup>‡</sup>, with a minority of low reactors (8-fold lower HI titres compared to reference strains). Detection of low reactors with specific antisera may be due to several different factors, so further analyses are performed to determine whether antigenic drift has occurred.



\* indicates strains included in the most recent WHO vaccine recommendation (2013-2014 Northern Hemisphere)

<sup>‡</sup> A small number of viruses have been analysed in comparison to the previous vaccine strain B/Wisconsin/1/2010. However, following a change in the WHO recommendations in February, B/Yamagata viruses are now analysed in comparison to the new vaccine reference strain B/Massachusetts/2/2012.



## Activity at the Centre (1 January–30 April 2013)

### Samples received

The Centre received 475 influenza samples from the laboratories listed below.

#### Submitting laboratories 1 January to 30 April, 2013

Austin Health (Melbourne, Australia)  
 Canberra Hospital (Canberra, Australia)  
 Canterbury Health Services (Christchurch, New Zealand)  
 Institute for Medical Research (Kuala Lumpur, Malaysia)  
 Institute of Environmental Science and Research (Wellington, New Zealand)  
 John Hunter Hospital (Newcastle, Australia)  
 National Public Health Laboratory (Singapore)  
 Pathwest QEII Medical Centre (Perth, Australia)  
 Prince of Wales Hospital (Sydney, Australia)  
 Public Health Laboratory (Macau SAR, China)  
 Research Institute for Tropical Medicine (Muntinlupa City, Philippines)  
 Royal Darwin Hospital (Darwin, Australia)  
 Royal Hobart Hospital (Hobart, Australia)  
 Royal Melbourne Hospital (Melbourne, Australia)  
 Thai National Influenza Center (Bangkok, Thailand)

### Antigenic analysis

A total of 431 influenza isolates submitted from contributing laboratories were analysed by HI assay (Table 1).

### Genetic analysis

Sequencing was performed on 89 HA, 74 NA, 36 MP and 31 NS genes. A total of 287 gene sequences from 111 human viruses were deposited with the GISAID EpiFlu™ database (<http://www.gisaid.org>) by the Centre (Table 2).

### Neuraminidase inhibitor resistance

A total of 567 influenza isolates were tested by neuraminidase inhibition (NAI) assay for susceptibility to the antiviral drugs oseltamivir, zanamivir, peramivir and laninamivir. (Table 3).

Country of submitting laboratory	Table 1: Number of viruses analysed by HI assay*					Table 2: Number of viruses with gene sequences deposited with GISAID				Table 3: Number of viruses tested by NAI assay			
	A(H1N1) pdm09	A (H3N2)	A mixed	B/ Victoria	B/ Yamagata	A(H1N1) pdm09	A(H3N2)	B/ Victoria	B/ Yamagata	A(H1N1) pdm09	A(H3N2)	A mixed	B
Australia	76	103	0	48	10	2	54	15	10	77	146	0	117
Cambodia	0	0	0	0	0	0	0	1	0	0	0	0	0
Fiji	0	0	0	0	0	0	0	0	1	0	0	0	0
Macau SAR	14	6	0	0	1	0	0	0	0	17	6	0	2
Malaysia	3	7	2	0	0	0	0	0	0	3	9	2	1
New Caledonia	1	0	0	0	0	0	0	0	0	1	5	0	2
New Zealand	9	23	0	0	14	1	5	2	4	7	29	0	24
Philippines	4	15	0	6	0	0	1	0	1	4	15	1	7
Singapore	25	25	0	9	8	0	0	0	0	25	25	0	19
Sri Lanka	0	0	0	0	0	0	0	5	3	0	0	0	0
Thailand	3	11	0	4	4	0	0	3	3	3	11	0	9
<b>Total</b>	<b>135</b>	<b>190</b>	<b>2</b>	<b>67</b>	<b>37</b>	<b>3</b>	<b>60</b>	<b>26</b>	<b>22</b>	<b>137</b>	<b>246</b>	<b>3</b>	<b>181</b>

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

### Isolation of viruses in eggs

The Centre undertakes primary isolation of selected viruses into eggs to obtain potential vaccine strains. From 1 January to 30 April, 2013, 2 A(H1N1)pdm09 and 5 A(H3N2) viruses have been successfully isolated in eggs at the Centre.