
# Influenza vaccine

## Revisiting Old and Addressing Current Issues

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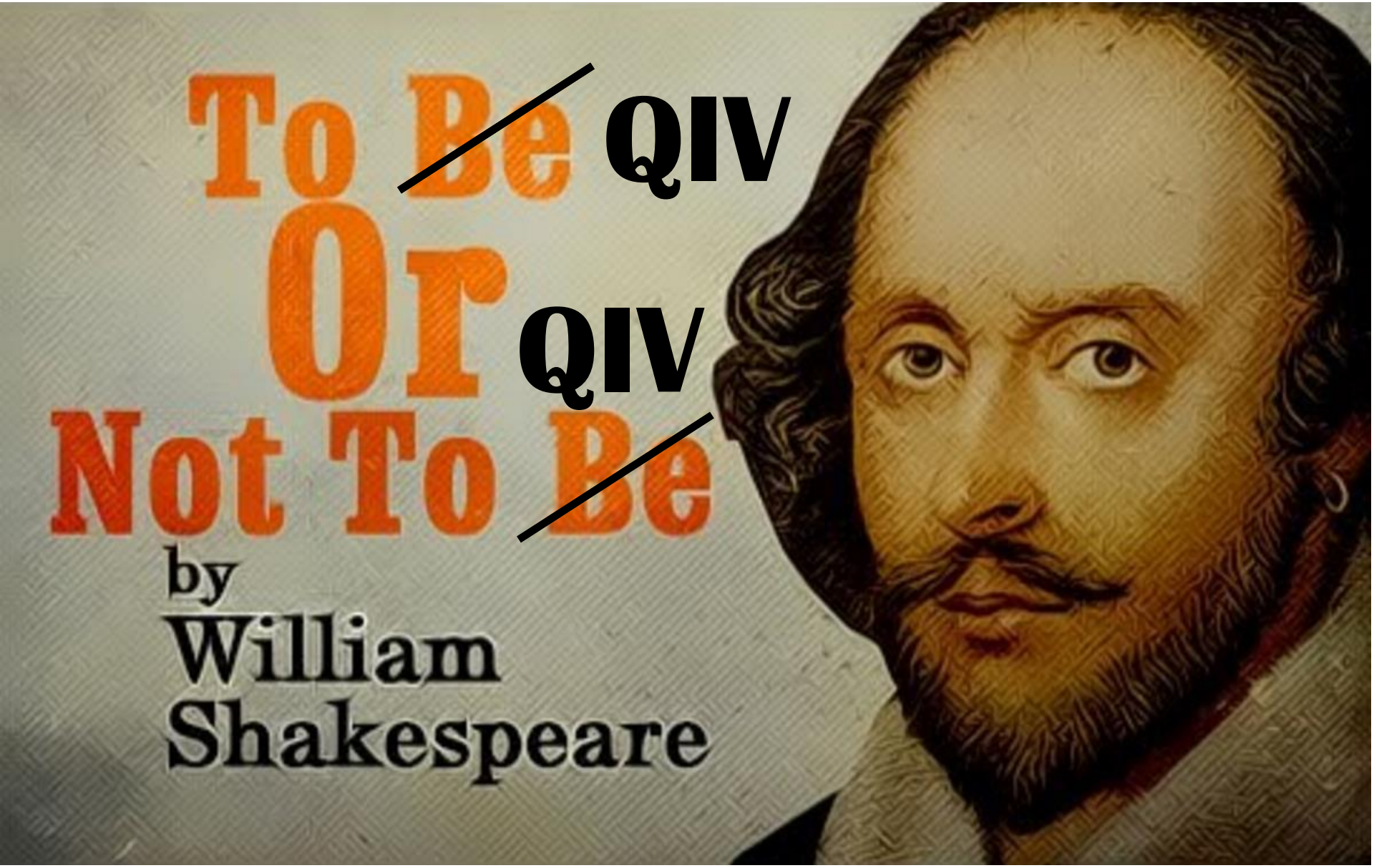
Manila, 18 February 2016

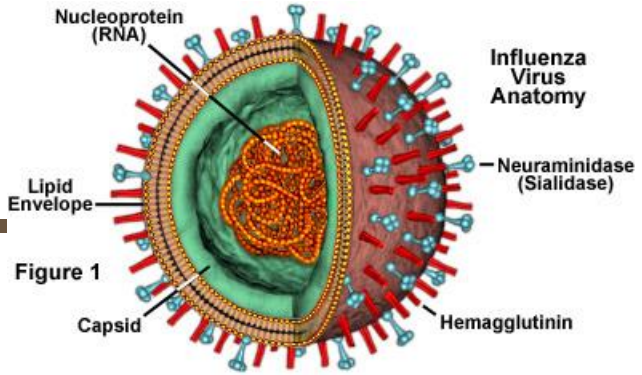

To Be
QIV
Or
QIV
Not To Be
by
William
Shakespeare

Influenza B pose less of a disease burden than Influenza A

There is only one B strain circulating every influenza season

Influenza B is not as severe as Influenza A

# Influenza B

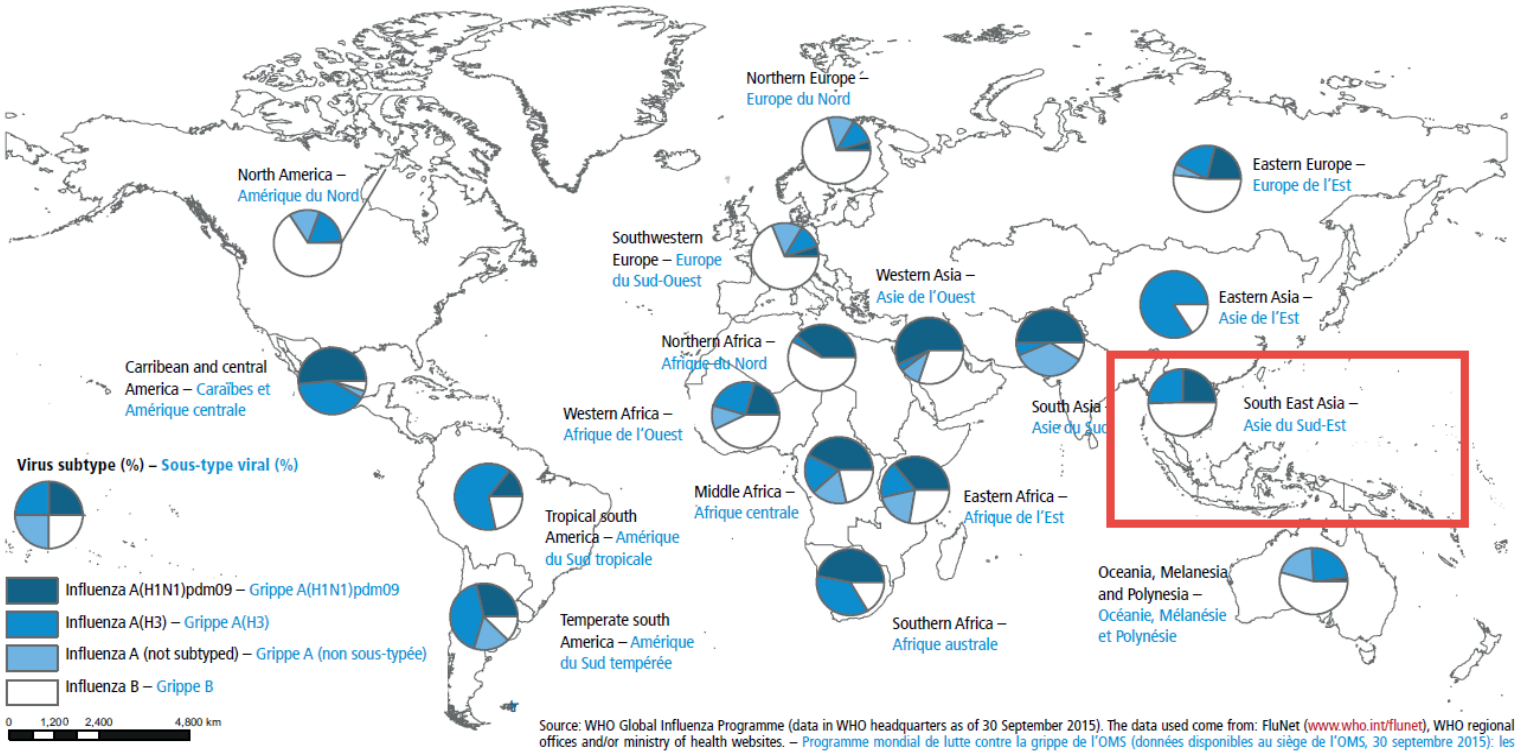



- Influenza B predominately circulates in human populations
- There are 2 antigenically and genetically distinct lineages
  - B/Victoria/2/87- like **(Victoria lineage)**
  - B/Yamagata/16/88-like **(Yamagata lineage)**
- Antibody responses to influenza B infection in children are lineage specific, with no cross reactivity between lineages
- Children accumulated natural immunity to influenza B more slowly than to influenza A.

Rota PA, Wallis TR, Harmon MW,Rota JS, Kendal AP, Nerome K. Cocirculation of two distinct evolutionary lineages of influenza type B virus since 1983. Virology. 1990;175(1):59---68
Bodewes R, de Mutsert G, van der Klis FR, Ventresca M, Wilks S, Smith DJ, et al. Prevalence of antibodies against seasonal influenza A and B viruses in children in Netherlands. Clin Vaccine Immunol 2011; 18:469-76

# WHO Review of the 2015 influenza season in the southern hemisphere

Map 1 **Distribution of influenza virus subtypes by influenza transmission zone, May 2015 to September 2015**
Carte 1 **Distribution des sous-types de virus grippaux par zones de transmission de la grippe, mai 2015-septembre 2015**




Source: WHO Global Influenza Programme (data in WHO headquarters as of 30 September 2015). The data used come from: FluNet (www.who.int/flunet), WHO regional offices and/or ministry of health websites. – Programme mondial de lutte contre la grippe de l'OMS (données disponibles au siège de l'OMS, 30 septembre 2015): les données utilisées proviennent de FluNet (www.who.int/flunet), des sites Internet des Bureaux régionaux de l'OMS et/ou des Ministères de la Santé.

Note: the available country data were joined in larger geographical areas with similar influenza transmission patterns to be able to give an overview (www.who.int/influenza/surveillance_monitoring/updates/EN_GIP_Influenza_transmission_zones.pdf). – Note: les données disponibles relatives aux pays ont été regroupées par zones géographiques plus larges où les modalités de transmission sont similaires de manière à fournir un tableau synoptique(www.who.int/influenza/surveillance_monitoring/updates/EN_GIP_Influenza_transmission_zones.pdf).





WHO. Review of the 2015 influenza season in the southern hemisphere – November 2015. Wkly Epidemiol Rec. 2015;90:645-660.

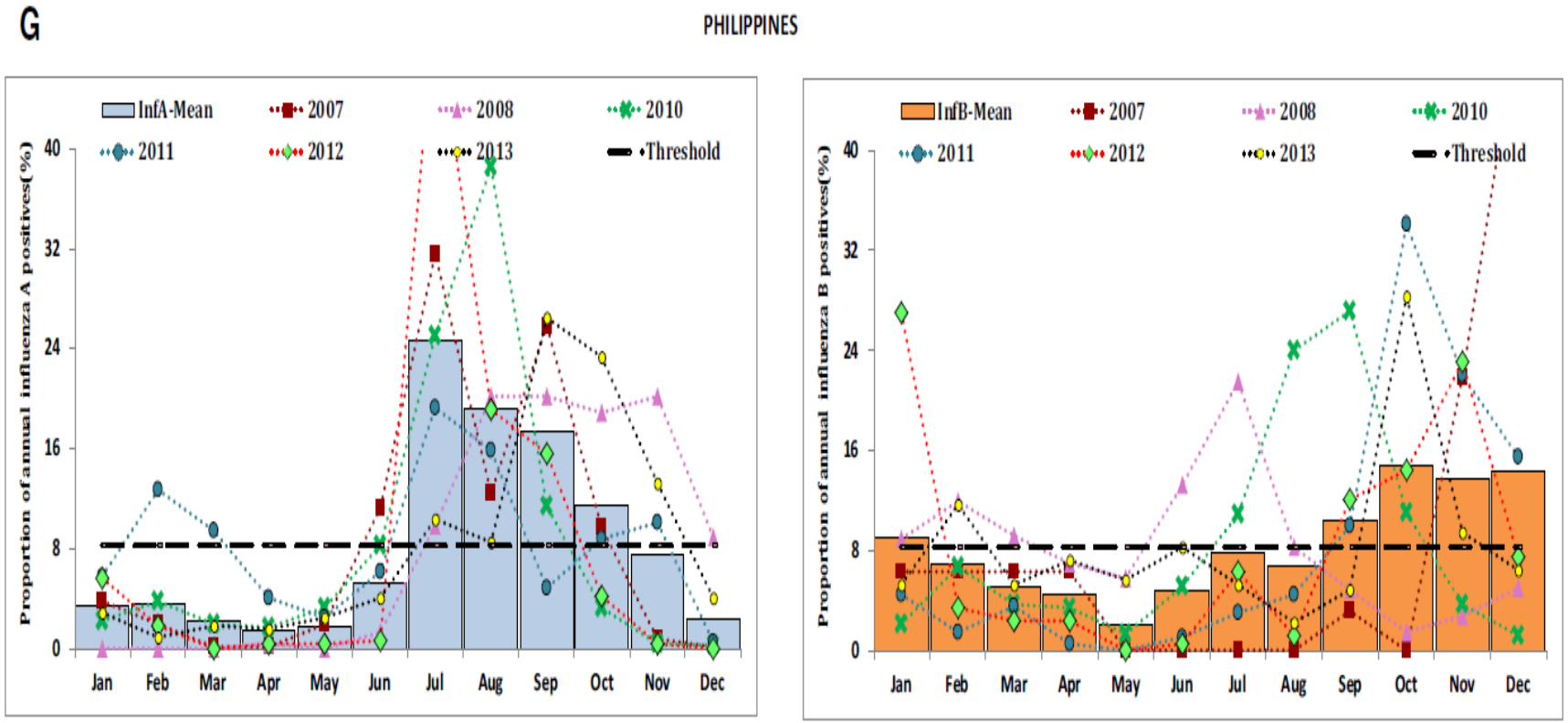
# Epidemiological and Virological Characteristics of Influenza in the Western Pacific Region, 2006- 2010

**Table 2.** Specimens tested and specimens positive for influenza by type/subtype/lineage in Western Pacific Region countries, 2006–2010. ^

| | 2006° | 2007[1] | 2008[2] | 2009[3] | 2010[3] |
|---|---|---|---|---|---|
| Number of specimens tested | **65,103** | **92,939** | **94,274** | **366,164** | **307,584** |
| Number of influenza positive specimens | **7,425 (11.4%)** | **11,143 (12.0%)** | **11,025 (11.7%)** | **115,554 (31.6%)** | **51,573 (16.8%)** |
| Influenza positive specimens by type/subtype | | | | | |
| Influenza A total | *4,393* | *7,297* | *7,426* | *110,668* | *26,008* |
| A(H1) | 2,952 | 907 | 4,241 | 6,307 | 31 |
| A(H1N1)pdm09 | 0 | 0 | 0 | 74,252 | 10,728 |
| A(H3) | 918 | 5,397 | 1,961 | 19,018 | 12,276 |
| A(subtyping not performed) | 523 | 993 | 1,224 | 11,091 | 2,973 |
| Influenza B total | *3,032* | *3,846* | *3,599* | *4,886* | *25,565* |
| B(Victoria) | 744 | 927 | 827 | 1,532 | 4,505 |
| B(Yamagata) | 76 | 1,642 | 1,360 | 235 | 954 |
| B(lineage not determined) | 2,212 | 1,277 | 1,412 | 3,119 | 20,106 |

Members of the Western Pacific Region Global Influenza Surveillance and Response System (2012) Epidemiological and Virological Characteristics of Organization, 2006–2010. PLoS ONE 7(5): e37568. doi:10.1371/Influenza in the Western Pacific Region of the World Health journal.pone.0037568

# Influenza in the Philippines

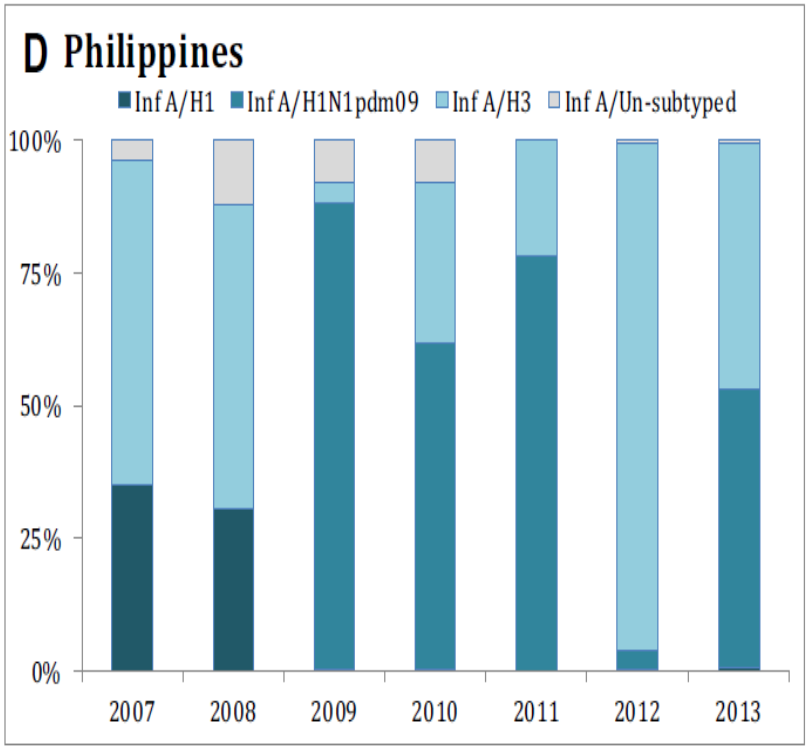


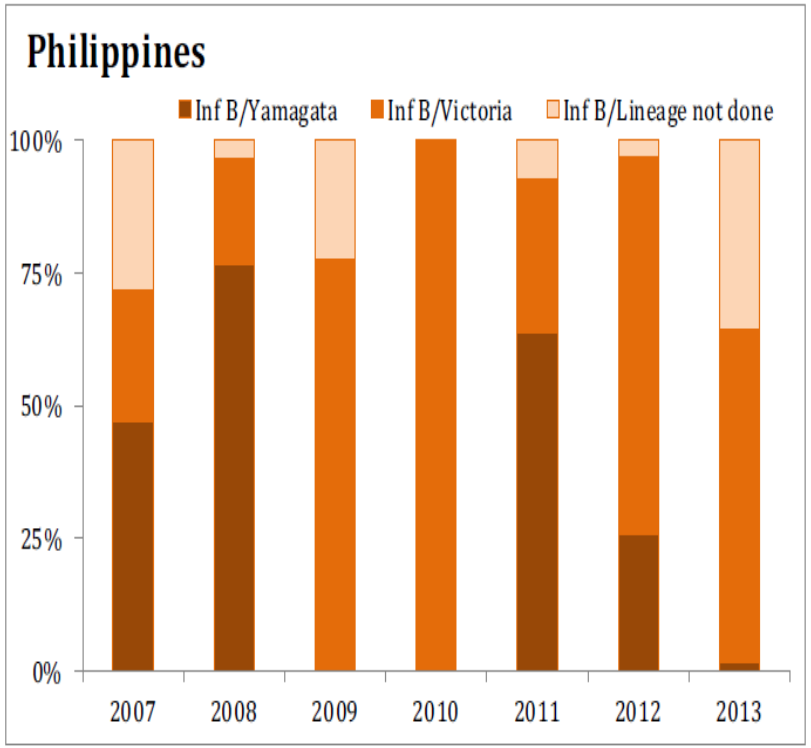

Influenza A

Influenza B

Saha et al. (2016) Divergent seasonal patterns of influenza types A and B across latitude gradient in Tropical Asia. Influenza and Other Respiratory Viruses DOI: 10.1111/irv.12372

# Influenza in the Philippines




Influenza A

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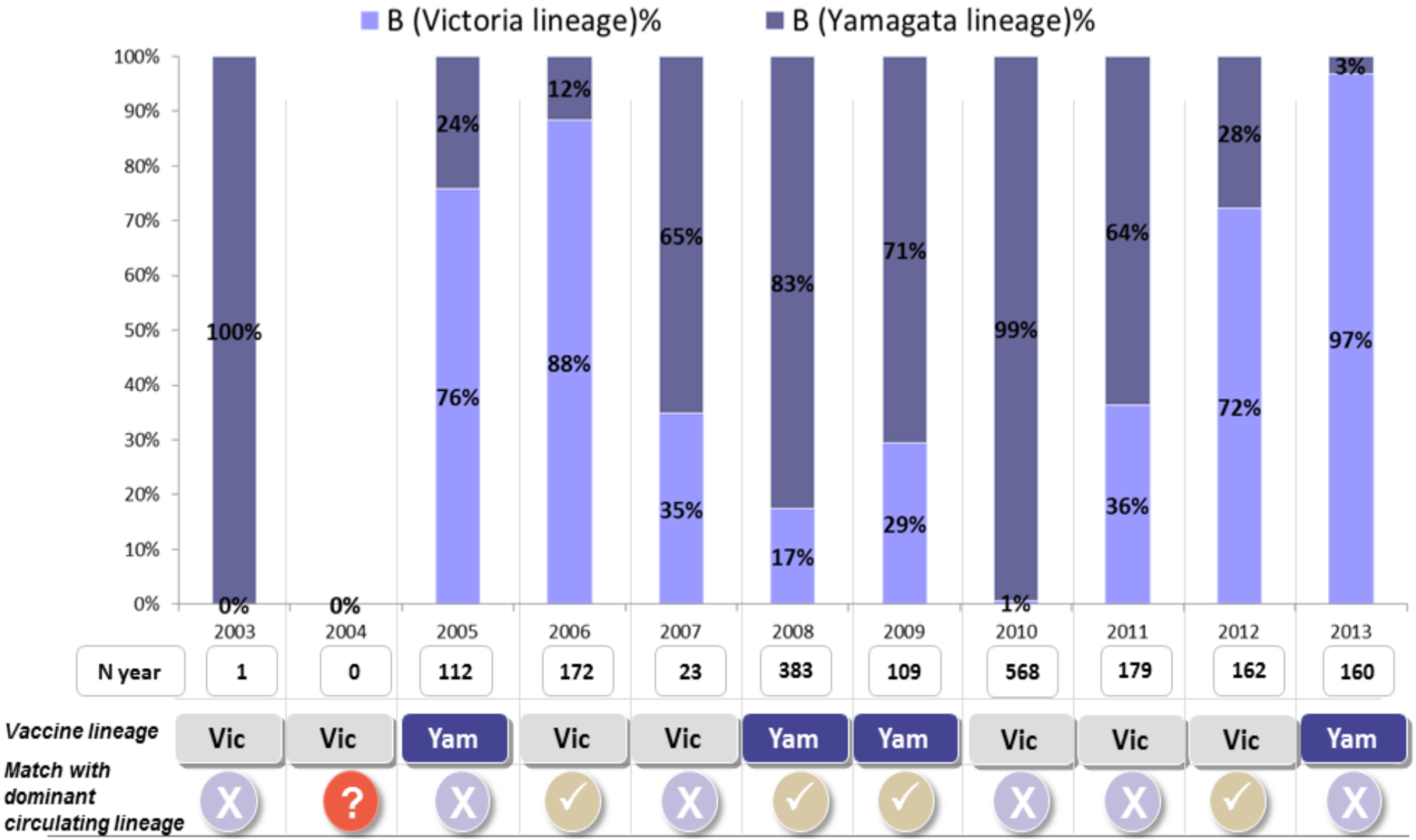
# Influenza in the Philippines

## *Circulating Influenza B lineages 2003 -2013*






Flunet, ttp://apps.who.int/globalatlas/dataQuery/default.asp

# Burden of Influenza B

- Although influenza B causes disease in all age groups, its incidence related to influenza A appears to be highest among older children and young adults.
- While influenza B causes mortality in all age groups, it appears to be a disproportionate cause of pediatric influenza deaths

Among US pediatric influenza deaths between 2004 and 2011,excluding the 2009---2010 pandemic,22% to 44% of deaths each season were confirmed to be influenza B-related

Ambrose, C. and M. Levin, The rationale for quadrivalent influenza vaccines. Human Vaccines & Immunotherapeutics, 2012. 8(1): p. 81-88.
Seasonal flu. Atlanta, GA: Centers for Disease Control and Prevention; 2011. Available at: http://www.cdc.gov/ flu.
Glezen WP et al. The Burden of Influenza B: A Structured Literature Review. Am J Public Health. 2013 Mar;103(3):e43-51

# Burden of Influenza B

- The influenza B attributable primary respiratory and circulatory hospitalization rate in the United States was a substantial
  - Infuenza A(H3N2) 99.0 per 100,000
  - Influenza B 81.4 per 100,000
  - Influenza A (H1N1) 55.9 per 100,000
- In Hong Kong, influenza B hospitalization rates varied by age
  - Highest rates observed in 2 – 4 year olds (43.5 per 10,000)

Thompson WW, Shay DK, Weintraub E, et al. Influenza-associated hospitalizations in the United States.JAMA. 2004;292(11):1333---1340
Chiu SS, Chan KH, Chen H, et al. Virologically confirmed population-based burden of hospitalization caused by influenza A and B among children in Hong Kong. Clin Infect Dis. 2009;49(7):1016---1021.
Glezen WP et al. The Burden of Influenza B: A Structured Literature Review. Am J Public Health. 2013 Mar;103(3):e43-51

# Influenza vaccines locally available

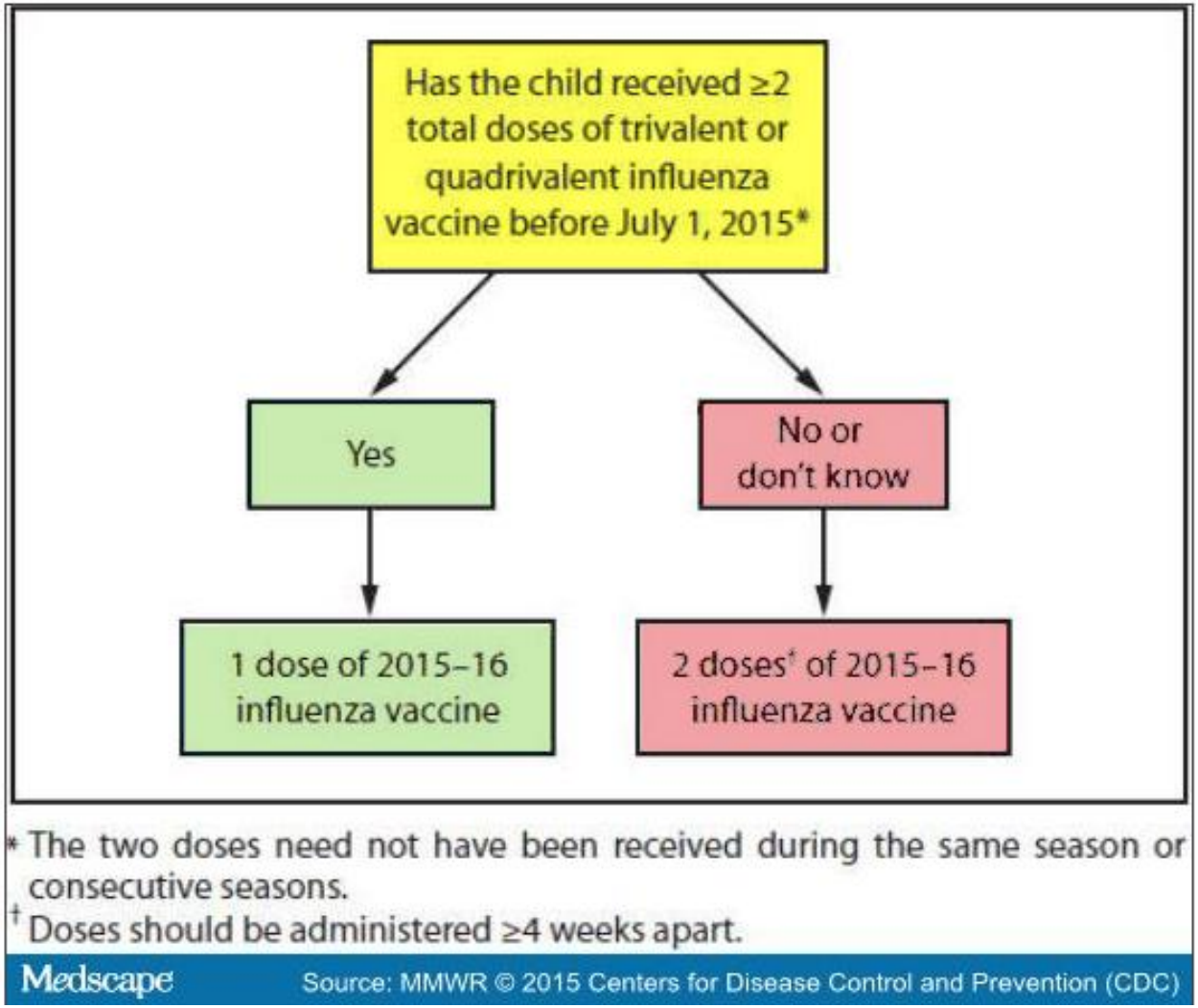
| Name | Brand | Type | Preparation |
|---|---|---|---|
| **Influvac** | Abbott | TIV Sub-unit | 0.5 ml |
| **Fluarix** | GSK | TIV Split virion | 0.5 ml |
| **Vaxigrip** | Sanofi | TIV Split virion | 0.5 ml |
| **FluQuadri** | Sanofi | QIV Split virion | 0.5ml and 0.25ml |

# WHO recommendations on the composition of influenza virus vaccines

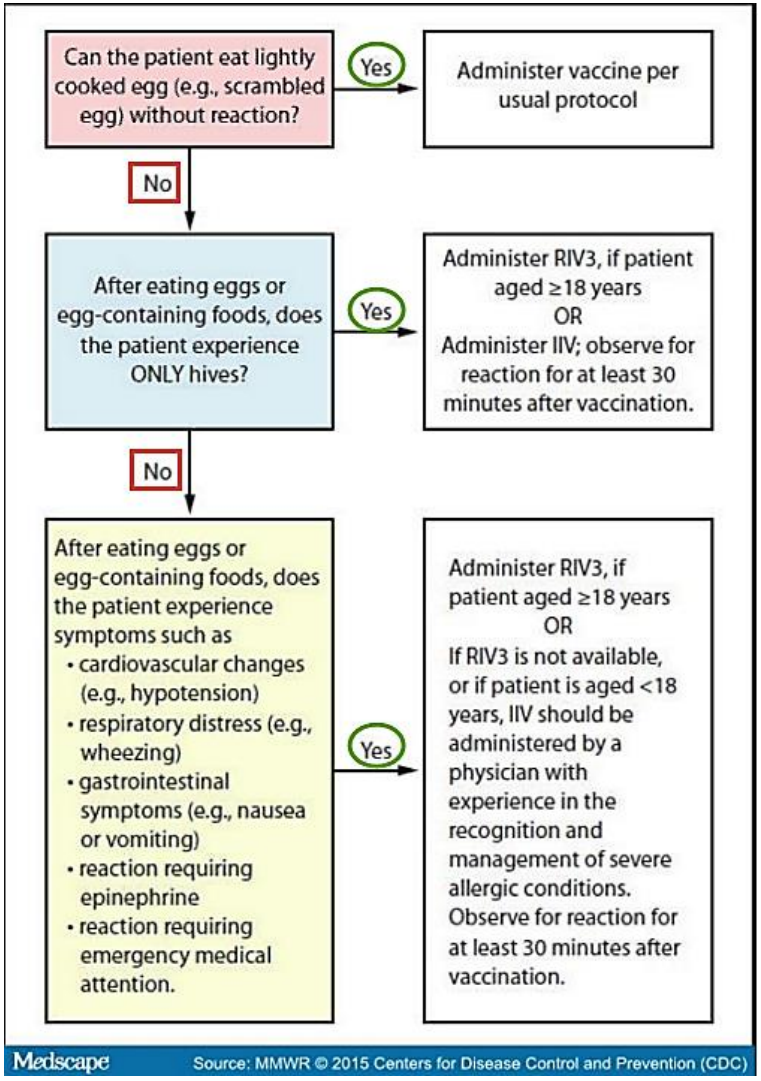
| Year | Northern Hemisphere | Year | Southern Hemisphere | Comment |
|---|---|---|---|---|
| **2013-2014** | an A/California/7/2009 (H1N1)pdm09-like virus;<br>an A/Texas/50/2012 (H3N2)-like virus;<br>a B/Massachusetts/2/2012-like virus | **2014** | **an A/California/7/2009 (H1N1)pdm09-like virus;**<br>an A/Texas/50/2012 (H3N2)-like virus;<br>a B/Massachusetts/2/2012-like virus | Same |
| **2014-2015** | an A/California/7/2009 (H1N1)pdm09-like virus;<br>an A/Texas/50/2012 (H3N2)-like virus;<br>a B/Massachusetts/2/2012-like virus<br>a B/Brisbane/60/2008-like virus | **2015** | **an A/California/7/2009 (H1N1)pdm09-like virus;**<br>an A/Switzerland/9715293/2013 (H3N2)-like virus;<br>**a B/Phuket/3073/2013-like virus**<br>**a B/Brisbane/60/2008-like virus** | 2/4 different |
| **2015-2016** | an A/California/7/2009 (H1N1)pdm09-like virus<br>an A/Switzerland/9715293/2013 (H3N2)-like virus<br>a B/Phuket/3073/2013-like virus<br>B/Brisbane/60/2008-like virus | **2016** | **an A/California/7/2009 (H1N1)pdm09-like virus**<br>an A/Hong Kong/4801/2014 (H3N2)-like virus<br>**a B/Brisbane/60/2008-like virus**<br>**a B/Phuket/3073/2013-like virus** | 1/4 different |

World Health Organization

# Dosing in Children Aged 6 months – 8 years old



# Vaccination of Persons with a History of Egg Allergy




- Persons with a history of egg allergy who have experienced only hives after exposure to egg should receive flu vaccine
- A previous severe allergic reaction to influenza vaccine, regardless of the component suspected of being responsible for the reaction, is a contraindication to future receipt of the vaccine.