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### Historical annual reformulations of the influenza vaccine

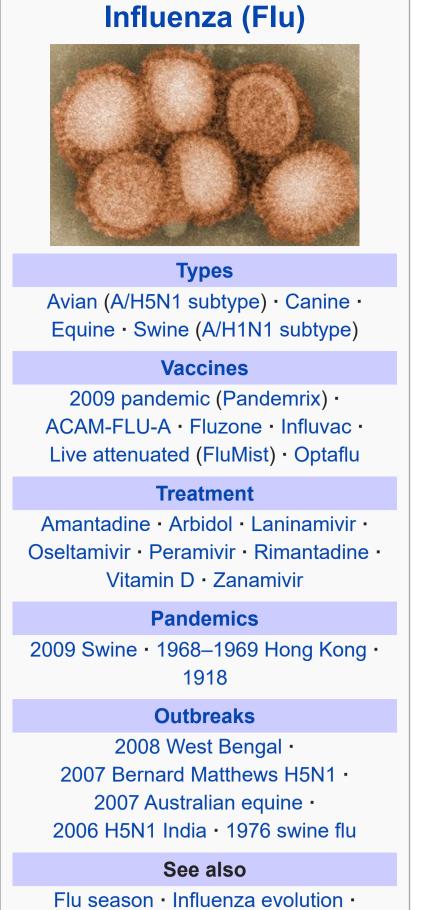
influenza vaccine is for the Northern Hemisphere, and the other is for the Southern Hemisphere.<sup>[1]</sup> Both recommendations are trivalent, i.e. featuring three strains.

Since 1999, the World Health Organization (WHO) has issued annual recommendations for influenza vaccine formulations. One reformulation of the Since the 2012–13 season, the WHO recommendations have also included the formulation of an annual quadrivalent vaccine, featuring an additional B-strain.

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Northern hemisphere recommended strains [edit]

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Influenza research · Influenza-like illness

V·T·E

The following is a list of WHO recommended strains for the Northern Hemisphere influenza season. Starting in the 2012-2013 season, the recommendation shifted from a trivalent influenza vaccine (TIV)

NH winter season	Influenza A H1N1	Influenza A H3N2	Influenza B Victoria	Influenza B Yamagata
November 1998–April 1999 <sup>[2]</sup>	A/Beijing/262/95 (H1N1)-like virus	A/Sydney/5/97 (H3N2)-like virus	N/A	B/Beijing/184/93-like virus
November 1999–April 2000 <sup>[3]</sup>	A/Beijing/262/95 (H1N1)-like virus	A/Sydney/5/97 (H3N2)-like virus	B/Shangdong/7/97-like virus <sup>[note 1]</sup>	B/Beijing/184/93-like virus <sup>[no</sup>
2000–2001 <sup>[4]</sup>	A/New Caledonia/20/99 (H1N1)-like virus	A/Moscow/10/99 (H3N2)-like virus	N/A	B/Beijing/184/93-like virus
2001–2002 <sup>[5]</sup>	A/New Caledonia/20/99 (H1N1)-like virus	A/Moscow/10/99 (H3N2)-like virus	N/A	B/Sichuan/379/99-like virus
2002–2003 <sup>[6]</sup>	A/New Caledonia/20/99 (H1N1)-like virus	A/Moscow/10/99 (H3N2)-like virus	B/Hong Kong/330/2001-like virus	N/A
2003–2004 <sup>[7]</sup>	A/New Caledonia/20/99 (H1N1)-like virus	A/Moscow/10/99 (H3N2)-like virus	B/Hong Kong/330/2001-like virus	
2004–2005 <sup>[8]</sup>	A/New Caledonia/20/99 (H1N1)-like virus	A/Fujian/411/2002 (H3N2)-like virus	N/A	B/Shanghai/361/2002-like vi
2005–2006 <sup>[9]</sup>	A/New Caledonia/20/99 (H1N1)-like virus	A/California/7/2004 (H3N2)-like virus	N/A	B/Shanghai/361/2002-like v
2006–2007 <sup>[10]</sup>	A/New Caledonia/20/99 (H1N1)-like	A/Wisconsin/67/2005 (H3N2)-like virus	B/Malaysia/2506/2004-like virus	N/A
2007–2008 <sup>[11]</sup>	A/Solomon Islands/3/2006 (H1N1)-like virus	A/Wisconsin/67/2005 (H3N2)-like virus	B/Malaysia/2506/2004-like virus	N/A
2008–2009 <sup>[12]</sup>	A/Brisbane/59/2007 (H1N1)-like virus	A/Brisbane/10/2007 (H3N2)-like virus	N/A	B/Florida/4/2006-like virus
2009–2010 <sup>[13]</sup>	A/Brisbane/59/2007 (H1N1)-like virus	A/Brisbane/10/2007 (H3N2)-like virus	B/Brisbane/60/2008-like virus	N/A
2010–2011 <sup>[14]</sup>	A/California/7/2009 (H1N1)-like virus	A/Perth/16/2009 (H3N2)-like virus	B/Brisbane/60/2008-like virus	N/A
2011–2012 <sup>[15]</sup>	A/California/7/2009 (H1N1)-like virus	A/Perth/16/2009 (H3N2)-like virus	B/Brisbane/60/2008-like virus	N/A
2012–2013 <sup>[16]</sup>	A/California/7/2009 (H1N1)pdm09 <sup>[note 2]</sup> -like virus <sup>[17]</sup>	A/Victoria/361/2011 (H3N2)-like virus	B/Brisbane/60/2008-like virus	B/Wisconsin/1/2010-like vir
2013–2014 <sup>[18]</sup>	A/California/7/2009 (H1N1)pdm09 <sup>[note 2]</sup> -like virus	A(H3N2) virus antigenically like the cell-propagated prototype virus A/Victoria/361/2011 <sup>[note 3]</sup>	B/Brisbane/60/2008-like virus	B/Massachusetts/2/2012-lik
2014–2015 <sup>[19]</sup>	A/California/7/2009 (H1N1)pdm09 <sup>[note 2]</sup> -like virus	A/Texas/50/2012 (H3N2)-like virus <sup>[note 4]</sup>	B/Brisbane/60/2008-like virus	B/Massachusetts/2/2012-lik
2015–2016 <sup>[20]</sup>	A/California/7/2009 (H1N1)pdm09 <sup>[note 2]</sup> -like virus	A/Switzerland/9715293/2013 (H3N2)-like virus	B/Brisbane/60/2008-like virus	B/Phuket/3073/2013-like vir
2016–2017 <sup>[21][22]</sup>	A/California/7/2009 (H1N1)pdm09 <sup>[note 2]</sup> -like virus	A/Hong Kong/4801/2014 (H3N2)-like virus	B/Brisbane/60/2008-like virus	B/Phuket/3073/2013-like vir
2017–2018 <sup>[23][24]</sup>	A/Michigan/45/2015 (H1N1)pdm09 <sup>[note 2]</sup> -like virus <sup>[25]</sup>	A/Hong Kong/4801/2014 (H3N2)-like virus	B/Brisbane/60/2008-like virus	B/Phuket/3073/2013-like vir
2018–2019 <sup>[26][27]</sup>	A/Michigan/45/2015 (H1N1)pdm09 <sup>[note 2]</sup> -like virus	A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus	B/Colorado/06/2017-like virus (B/Victoria/2/87 lineage)	B/Phuket/3073/2013-like vir (B/Yamagata/16/88 lineage)
2019–2020 <sup>[28][29][30]</sup>	A/Brisbane/02/2018 (H1N1)pdm09 <sup>[note 2]</sup> -like virus	A/Kansas/14/2017 (H3N2)-like virus	B/Colorado/06/2017-like virus (B/Victoria/2/87 lineage)	B/Phuket/3073/2013-like vir (B/Yamagata/16/88 lineage)
2020–2021 Egg-based Vaccines <sup>[31]</sup>	A/Guangdong-Maonan/SWL1536/2019 (H1N1)pdm09-like virus <sup>[note 2]</sup> -like virus	A/Hong Kong/2671/2019 (H3N2)-like virus	B/Washington/02/2019 (B/Victoria lineage)-like virus	B/Phuket/3073/2013 (B/Yamagata lineage)-like v
2020–2021 Cell- or recombinant-based	A/Hawaii/70/2019 (H1N1)pdm09-like	A/Hong Kong/45/2019 (H3N2)-like virus	B/Washington/02/2019	B/Phuket/3073/2013

(B/Victoria lineage)-like virus

(B/Yamagata lineage)-like virus

SH winter season	Influenza A H1N1	Influenza A H3N2	Influenza B Victoria	Influenza B Yamagata
1999 <sup>[32]</sup>	A/Beijing/262/95 (H1N1)-like virus	A/Sydney/5/97 (H3N2)-like virus	N/A	B/Beijing/184/93-like virus
May–October 2000 <sup>[33]</sup>	A/New Caledonia/20/99 (H1N1)-like virus	A/Moscow/10/99 (H3N2)-like virus	B/Shangdong/7/97-like virus <sup>[note 1]</sup>	B/Beijing/184/93-like virus <sup>[note 1]</sup>
May–October 2001 <sup>[34]</sup>	A/New Caledonia/20/99 (H1N1)-like virus	A/Moscow/10/99 (H3N2)-like virus	N/A	B/Sichuan/379/99-like virus
2002 <sup>[35]</sup>	A/New Caledonia/20/99 (H1N1)-like virus	A/Moscow/10/99 (H3N2)-like virus	N/A	B/Sichuan/379/99-like virus
2003 <sup>[36]</sup>	A/New Caledonia/20/99 (H1N1)-like virus	A/Moscow/10/99 (H3N2)-like virus	B/Hong Kong/330/2001-like virus	N/A
2004 <sup>[37]</sup>	A/New Caledonia/20/99 (H1N1)-like virus	A/Fujian/411/2002 (H3N2) - like virus	B/Hong Kong/330/2001-like virus	N/A
2005 <sup>[38]</sup>	A/New Caledonia/20/99 (H1N1)-like virus	A/Wellington/1/2004 (H3N2)-like virus	N/A	B/Shanghai/361/2002-like virus
2006 <sup>[39]</sup>	A/New Caledonia/20/99 (H1N1)-like virus	A/California/7/2004 (H3N2)-like virus	B/Malaysia/2506/2004-like virus	N/A
2007 <sup>[40]</sup>	A/New Caledonia/20/99 (H1N1)-like	A/Wisconsin/67/2005 (H3N2)-like virus	B/Malaysia/2506/2004-like virus	N/A
2008 <sup>[41]</sup>	A/Solomon Islands/3/2006 (H1N1)-like virus	A/Brisbane/10/2007 (H3N2)-like virus	N/A	B/Florida/4/2006-like virus
2009 <sup>[42]</sup>	A/Brisbane/59/2007 (H1N1)-like virus	A/Brisbane/10/2007 (H3N2)-like virus	N/A	B/Florida/4/2006-like virus
2010 <sup>[43]</sup>	A/California/7/2009 (H1N1)-like virus	A/Perth/16/2009 (H3N2)-like virus	B/Brisbane/60/2008-like virus	N/A
2011 <sup>[44]</sup>	A/California/7/2009 (H1N1)-like virus	A/Perth/16/2009 (H3N2)-like virus	B/Brisbane/60/2008-like virus	N/A
2012 <sup>[45]</sup>	A/California/7/2009 (H1N1)pdm09 <sup>[note 2]</sup> - like virus <sup>[17]</sup>	A/Perth/16/2009 (H3N2)-like virus	B/Brisbane/60/2008-like virus	N/A
2013 <sup>[46]</sup>	A/California/7/2009 (H1N1)pdm09-like virus	A/Victoria/361/2011 (H3N2)-like virus	B/Brisbane/60/2008-like virus	B/Wisconsin/1/2010-like virus
2014 <sup>[47]</sup>	A/California/7/2009 (H1N1)pdm09-like virus	A/Texas/50/2012 (H3N2)-like virus <sup>[note 4]</sup>	B/Brisbane/60/2008-like virus	B/Massachusetts/2/2012-like virus
2015 <sup>[48]</sup>	A/California/7/2009 (H1N1)pdm09-like virus	A/Switzerland/9715293/2013 (H3N2)-like virus	B/Brisbane/60/2008-like virus	B/Phuket/3073/2013-like virus
2016 <sup>[49]</sup>	A/California/7/2009 (H1N1)pdm09-like virus	A/Hong Kong/4801/2014 (H3N2)-like virus	B/Brisbane/60/2008-like virus	B/Phuket/3073/2013-like virus
2017 <sup>[50][51]</sup>	A/Michigan/45/2015 (H1N1)pdm09-like virus <sup>[25]</sup>	A/Hong Kong/4801/2014 (H3N2)-like virus	B/Brisbane/60/2008-like virus	B/Phuket/3073/2013-like virus
2018 <sup>[52][53]</sup>	A/Michigan/45/2015 (H1N1)pdm09-like virus	A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus	B/Brisbane/60/2008-like virus	B/Phuket/3073/2013-like virus
2019 <sup>[54][55]</sup>	A/Michigan/45/2015 (H1N1)pdm09-like virus	A/Switzerland/8060/2017 (H3N2)-like virus	B/Colorado/06/2017-like virus (B/Victoria/2/87 lineage)	B/Phuket/3073/2013-like virus (B/Yamagata/16/88 lineage)
2020 <sup>[56][57]</sup>	A/Brisbane/02/2018 (H1N1)pdm09-like virus	A/South Australia/34/2019 (H3N2)-like virus	B/Washington/02/2019-like (B/Victoria lineage) virus	B/Phuket/3073/2013-like (B/Yamagata virus

# 1. ^ a b c d The recommendation was for either the B Victoria or the B Yamagata strain.

Notes [edit]

Vaccines<sup>[31]</sup>

virus<sup>[note 2]</sup>-like virus

Southern hemisphere recommended strains [edit]

- 2. ^ a b c d e f g h i j k (H1N1)pdm09 is newer nomenclature for the 2009 pandemic H1N1 virus, not a different strain. 3. A It is recommended that A/Texas/50/2012 is used as the A(H3N2) vaccine component because of antigenic changes in earlier A/Victoria/361/2011-like vaccine viruses (such as IVR-165) resulting from adaptation to propagation in eggs.
- 4. ^ a b A/Texas/50/2012 is an A(H3N2) virus that following adaptation to growth in eggs has maintained antigenic properties similar to the majority of recently circulating cell-propagated A(H3N2) viruses including A/Victoria/361/2011
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