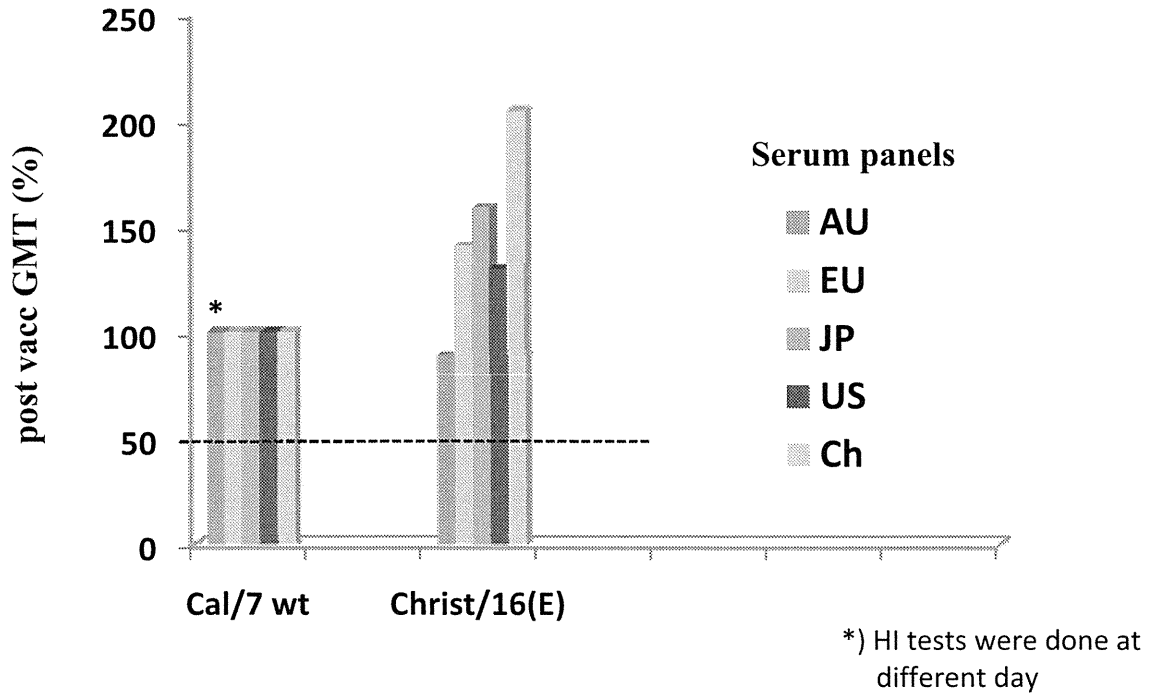
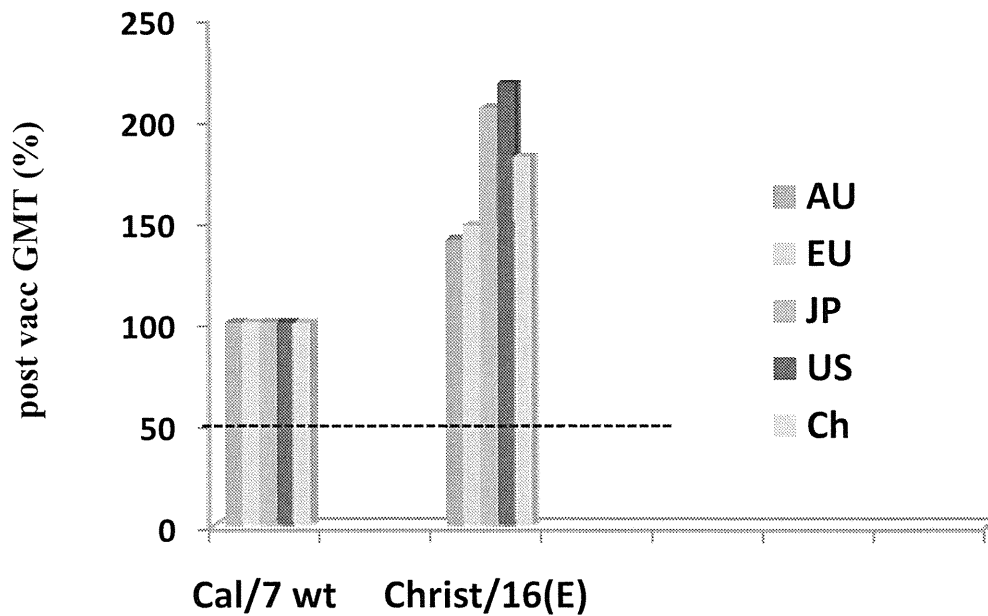


HI antibody response to H1N1pdm viruses

Adult



Elderly



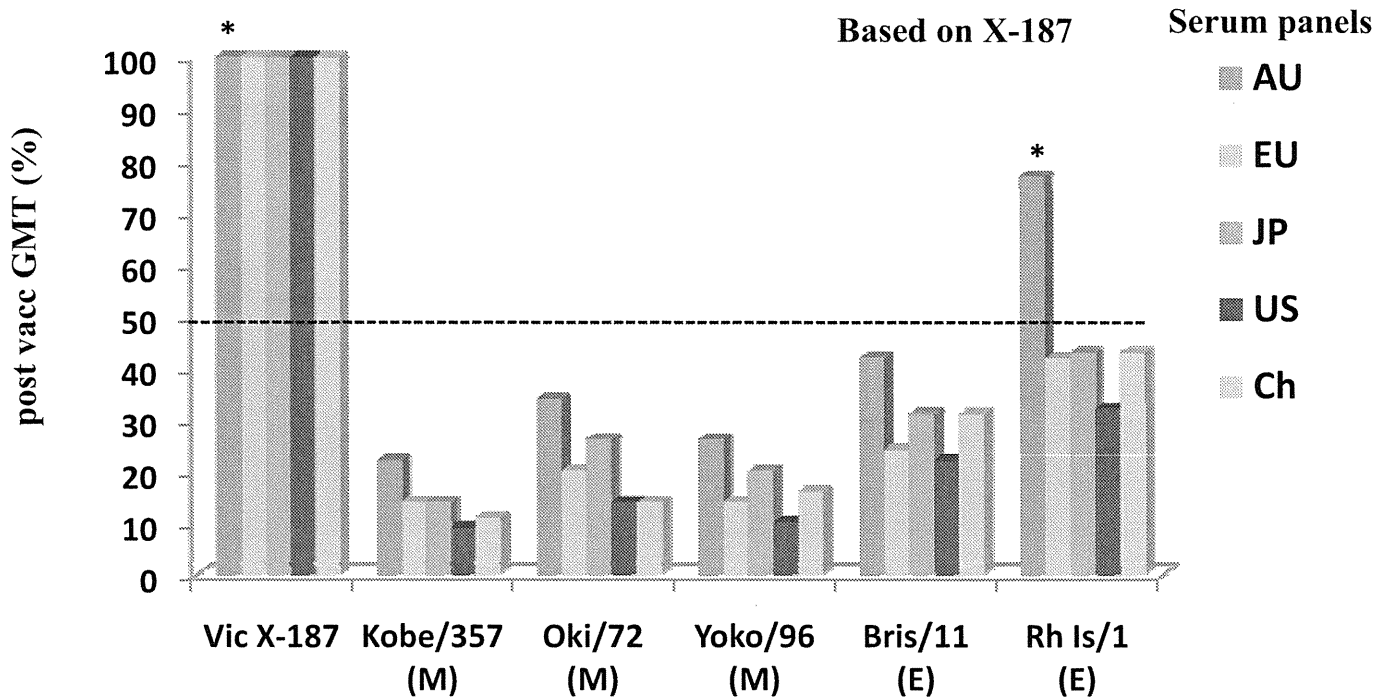
HI antibody response to H3 viruses

SAMPLE	Antigens	PASSAGE HISTORY	GMT		(%) \geq 40		% 4-FOLD RISE	post vacc GMT reduction (%) X-187	post vacc GMT reduction(%) Rh Is
			PRE	POST	PRE	POST			
Australia Adult	A/Victoria/210/2009 X-187*	E7/E2+1	13.3	82.3	25.0	79.2	79.2		0
	A/Kobe/357/2010	MDCK 1+2	7.7	18.3	0.0	20.8	37.5	78	71
	A/Okinawa/72/2010	MDCK 1+2	10.6	28.3	12.5	54.2	37.5	66	55
	A/Yokohama/96/2010	MDCK 2+2	8.9	21.8	4.2	29.2	33.3	74	66
	A/Brisbane/11/2010	E4+2	7.3	34.6	8.3	54.2	70.8	58	46
	A/Rhode Island/1/2010*	E3+1	11.9	63.5	16.7	79.2	70.8	23	
E.U Adult	A/Victoria/210/2009 X-187	E7/E2+1	7.7	226.3	8.3	100.0	95.8		0
	A/Kobe/357/2010	MDCK 1+2	5.6	30.8	4.2	50.0	83.3	86	68
	A/Okinawa/72/2010	MDCK 1+2	7.5	44.9	4.2	75.0	83.3	80	53
	A/Yokohama/96/2010	MDCK 2+2	6.5	30.8	4.2	58.3	83.3	86	68
	A/Brisbane/11/2010	E4+2	5.9	53.4	4.2	75.0	79.2	76	44
	A/Rhode Island/1/2010	E3+1	5.9	95.1	4.2	87.5	91.7	58	
Japan Adult	A/Victoria/210/2009 X-187	E7/E2+1	13.7	87.2	25.0	87.5	62.5		0
	A/Kobe/357/2010	MDCK 1+2	6.7	15.0	0.0	16.7	29.2	83	60
	A/Okinawa/72/2010	MDCK 1+2	8.7	22.4	4.2	45.8	33.3	74	41
	A/Yokohama/96/2010	MDCK 2+2	7.5	17.8	4.2	25.0	33.3	80	53
	A/Brisbane/11/2010	E4+2	8.2	26.7	12.5	50.0	41.7	69	29
	A/Rhode Island/1/2010	E3+1	8.2	37.8	12.5	58.3	62.5	57	
U.S. Adult	A/Victoria/210/2009 X-187	E7/E2+1	11.6	174.5	20.8	91.7	95.8		0
	A/Kobe/357/2010	MDCK 1+2	5.6	15.4	0.0	20.8	45.8	91	73
	A/Okinawa/72/2010	MDCK 1+2	7.7	23.8	4.2	41.7	62.5	86	58
	A/Yokohama/96/2010	MDCK 2+2	6.5	16.8	0.0	29.2	50.0	90	70
	A/Brisbane/11/2010	E4+2	5.9	37.8	0.0	66.7	70.8	78	33
	A/Rhode Island/1/2010	E3+1	6.5	56.6	4.2	75.0	75.0	68	
China Adult	A/Victoria/210/2009 X-187	E7/E2+1	10.5	110.6	23.3	96.7	76.7		0
	A/Kobe/357/2010	MDCK 1+2	6.0	12.3	0.0	10.0	36.7	89	74
	A/Okinawa/72/2010	MDCK 1+2	6.9	15.5	6.7	20.0	40.0	86	68
	A/Yokohama/96/2010	MDCK 2+2	6.9	17.4	6.7	23.3	50.0	84	64
	A/Brisbane/11/2010	E4+2	7.1	34.8	6.7	60.0	63.3	69	28
	A/Rhode Island/1/2010	E3+1	7.6	48.1	6.7	63.3	66.7	57	
Australia Elderly	A/Victoria/210/2009 X-187	E7/E2+1	18.3	116.5	33.3	95.8	75.0		0
	A/Kobe/357/2010	MDCK 1+2	8.7	24.5	0.0	41.7	50.0	79	61
	A/Okinawa/72/2010	MDCK 1+2	10.9	32.7	0.0	66.7	54.2	72	49
	A/Yokohama/96/2010	MDCK 2+2	8.7	25.2	0.0	45.8	50.0	78	60
	A/Brisbane/11/2010	E4+2	9.2	53.4	12.5	75.0	70.8	54	16
	A/Rhode Island/1/2010	E3+1	11.9	63.5	16.7	87.5	75.0	46	
E.U Elderly	A/Victoria/210/2009 X-187	E7/E2+1	24.0	146.2	39.1	91.3	65.2		0
	A/Kobe/357/2010	MDCK 1+2	10.0	27.9	13.0	47.8	43.5	81	58
	A/Okinawa/72/2010	MDCK 1+2	13.5	30.5	21.7	56.5	34.8	79	54
	A/Yokohama/96/2010	MDCK 2+2	9.7	24.0	4.3	43.5	30.4	84	54
	A/Brisbane/11/2010	E4+2	12.7	47.9	21.7	65.2	52.2	67	28
	A/Rhode Island/1/2010	E3+1	13.9	66.8	17.4	78.3	56.5	54	
Japan Elderly	A/Victoria/210/2009 X-187	E7/E2+1	8.7	43.6	12.5	70.8	70.8		0
	A/Kobe/357/2010	MDCK 1+2	5.3	10.6	0.0	8.3	25.0	76	57
	A/Okinawa/72/2010	MDCK 1+2	5.8	12.2	0.0	4.2	41.7	72	50
	A/Yokohama/96/2010	MDCK 2+2	5.9	12.2	0.0	8.3	33.3	72	50
	A/Brisbane/11/2010	E4+2	5.9	18.3	4.2	37.5	58.3	58	25
	A/Rhode Island/1/2010	E3+1	7.5	24.5	4.2	54.2	50.0	44	
U.S. Elderly	A/Victoria/210/2009 X-187	E7/E2+1	16.8	113.1	20.8	87.5	54.2		0
	A/Kobe/357/2010	MDCK 1+2	6.3	11.9	0.0	4.2	20.8	89	68
	A/Okinawa/72/2010	MDCK 1+2	7.7	13.7	0.0	8.3	20.8	88	63
	A/Yokohama/96/2010	MDCK 2+2	7.9	15.0	0.0	16.7	20.8	87	59
	A/Brisbane/11/2010	E4+2	9.2	26.7	12.5	41.7	45.8	76	27
	A/Rhode Island/1/2010	E3+1	9.7	36.7	16.7	58.3	58.3	68	
China Elderly	A/Victoria/210/2009 X-187	E7/E2+1	9.3	109.2	20.7	93.1	79.3		0
	A/Kobe/357/2010	MDCK 1+2	6.5	16.5	0.0	17.2	48.3	85	63
	A/Okinawa/72/2010	MDCK 1+2	7.5	20.0	3.4	24.1	48.3	82	56
	A/Yokohama/96/2010	MDCK 2+2	7.7	21.5	3.4	27.6	55.2	80	52
	A/Brisbane/11/2010	E4+2	6.7	35.5	6.9	65.5	62.1	68	21
	A/Rhode Island/1/2010	E3+1	7.0	45.1	6.9	69.0	69.0	59	

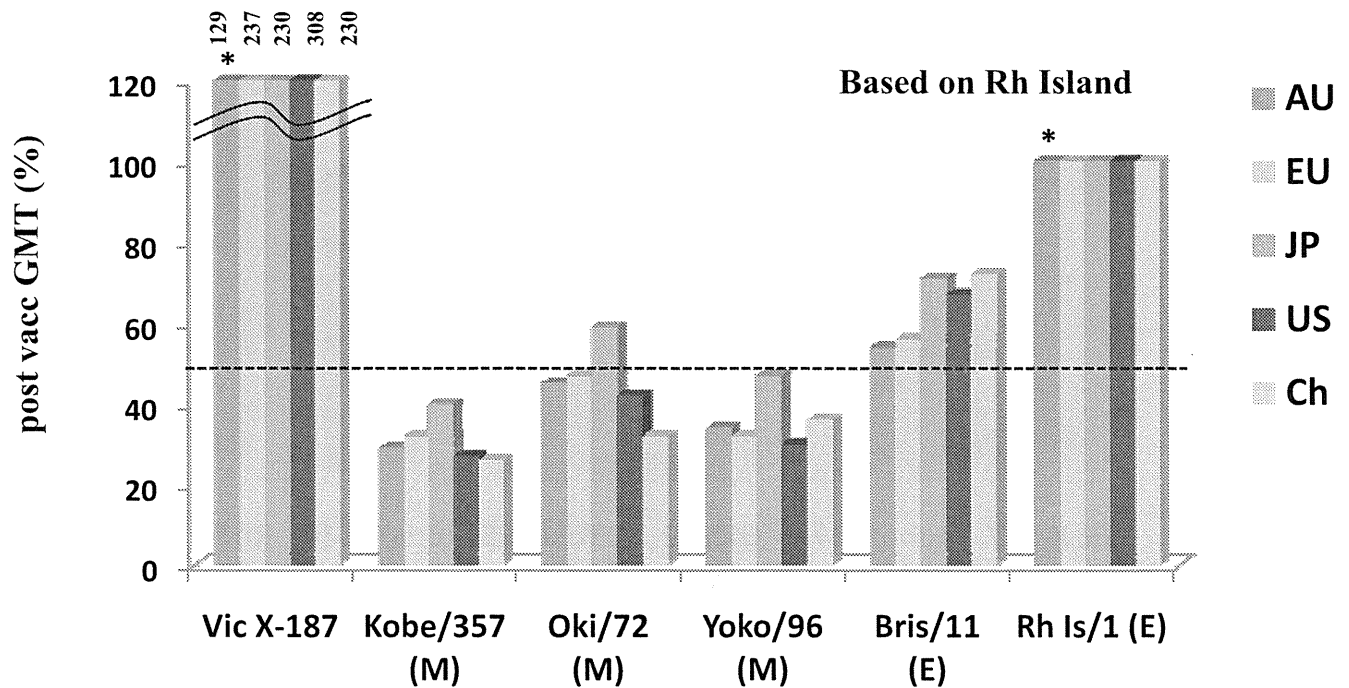
*) HI tests were done at different day, Sept 2010

HI antibody response to H3N2 viruses

Adult



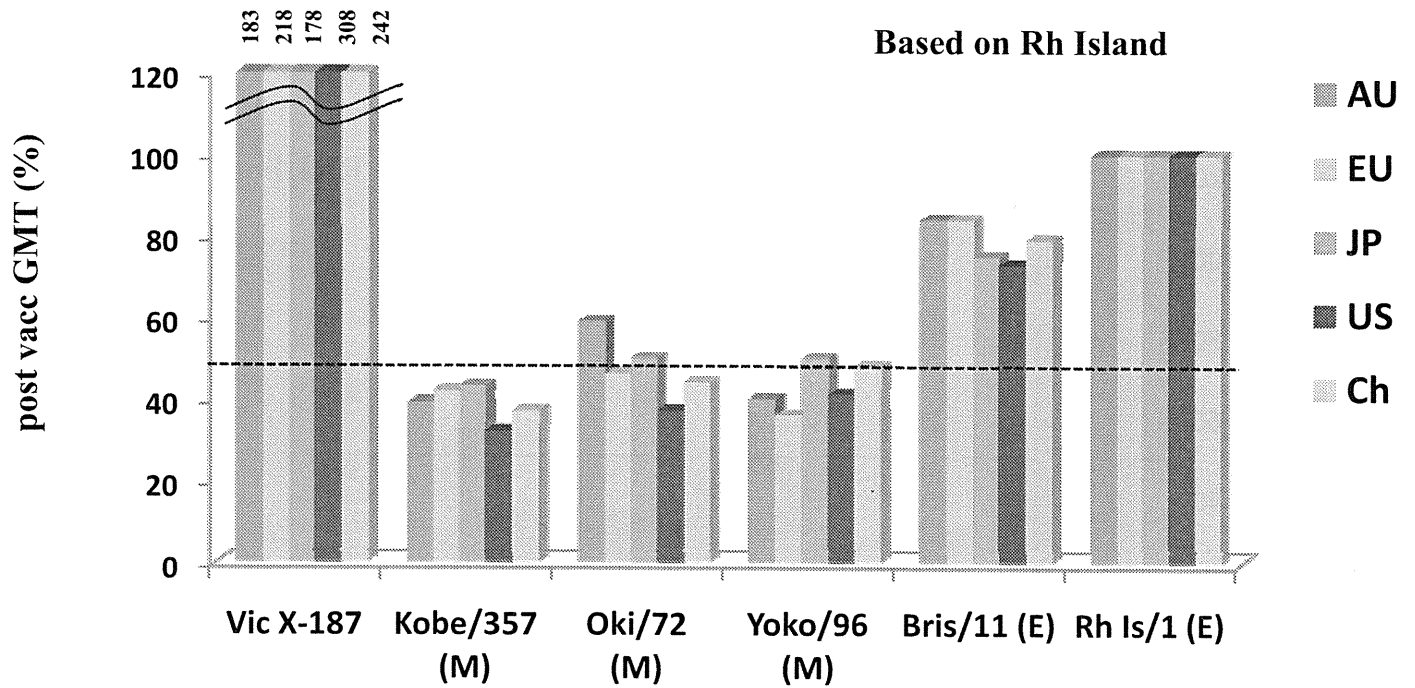
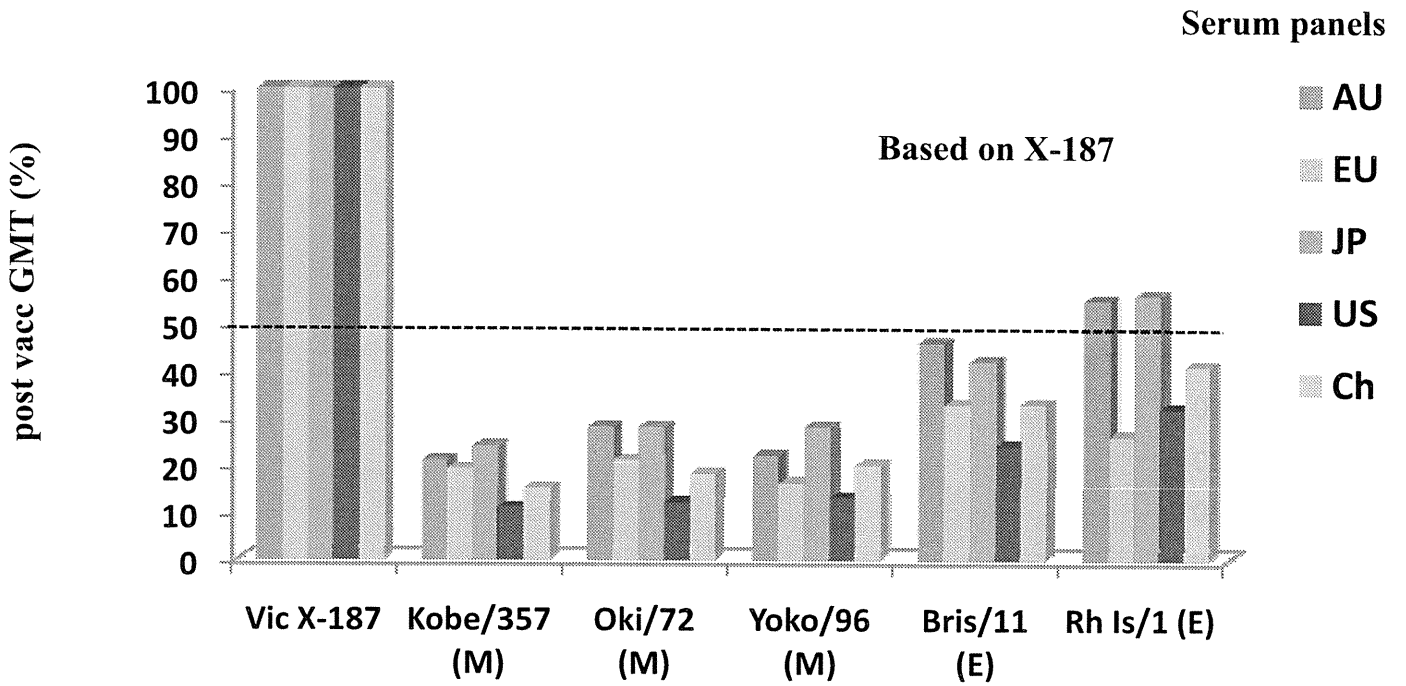
*) HI tests were done at different day



*) HI tests were done at different day

HI antibody response to H3N2 viruses

Elderly



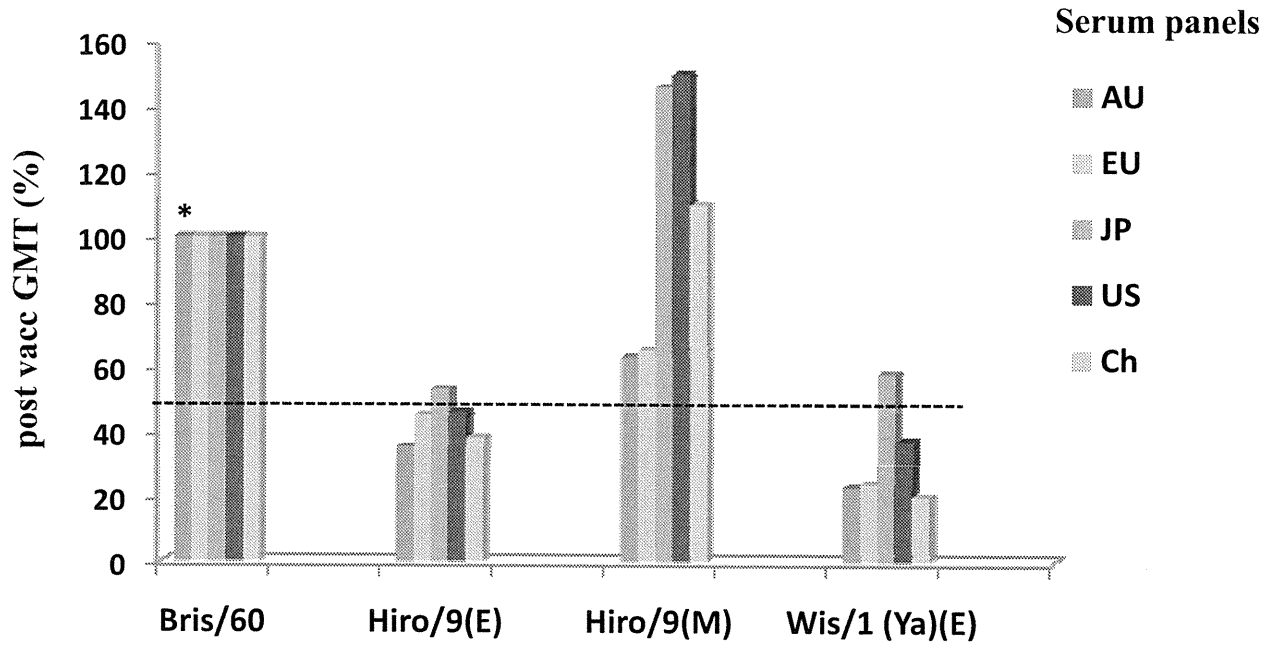
HI antibody response to B viruses

SAMPLE	Antigens	PASSAGE HISTORY	GMT		(%) ≥ 40		% 4-FOLD RISE	post vaccGMT reduction (%)
			PRE	POST	PRE	POST		
Australia Adult	B/Brisbane/60/2008*	E4+1	22.4	50.4	45.8	75.0	29.2	
	B/Hiroshima/9/2010	E1+1	10.6	17.8	12.5	33.3	12.5	65
	B/Hiroshima/9/2010	MDCK 1+1	19.4	31.7	20.8	54.2	16.7	37
	B/Wisconsin/1/2010	E3+1	9.4	11.6	4.2	8.3	4.2	77
E.U Adult	B/Brisbane/60/2008	E4+1	11.6	113.1	12.5	95.8	83.3	
	B/Hiroshima/9/2010	E1+1	7.9	50.4	12.5	83.3	75.0	55
	B/Hiroshima/9/2010	MDCK 1+1	13.7	73.4	16.7	87.5	79.2	35
	B/Wisconsin/1/2010	E3+1	6.3	26.7	4.2	50.0	58.3	76
Japan Adult	B/Brisbane/60/2008	E4+1	20.6	32.7	25.0	54.2	4.2	
	B/Hiroshima/9/2010	E1+1	11.9	17.3	12.5	20.8	4.2	47
	B/Hiroshima/9/2010	MDCK 1+1	32.7	47.6	75.0	100.0	4.2	0
	B/Wisconsin/1/2010	E3+1	14.1	18.9	16.7	25.0	4.2	42
U.S. Adult	B/Brisbane/60/2008	E4+1	22.4	56.6	33.3	75.0	41.7	
	B/Hiroshima/9/2010	E1+1	12.6	25.9	8.3	45.8	33.3	54
	B/Hiroshima/9/2010	MDCK 1+1	42.4	84.8	83.3	95.8	20.8	0
	B/Wisconsin/1/2010	E3+1	16.3	21.2	20.8	33.3	20.8	63
China Adult	B/Brisbane/60/2008	E4+1	11.5	37.3	20.0	63.3	50.0	
	B/Hiroshima/9/2010	E1+1	6.9	14.1	3.3	20.0	23.3	62
	B/Hiroshima/9/2010	MDCK 1+1	19.1	40.9	40.0	73.3	30.0	0
	B/Wisconsin/1/2010	E3+1	5.9	7.6	0.0	0.0	10.0	80
Australia Elderly	B/Brisbane/60/2008	E4+1	9.7	23.8	4.2	41.7	41.7	
	B/Hiroshima/9/2010	E1+1	7.1	11.9	4.2	16.7	20.8	50
	B/Hiroshima/9/2010	MDCK 1+1	18.3	27.5	16.7	29.2	16.7	0
	B/Wisconsin/1/2010	E3+1	8.7	12.6	4.2	20.8	20.8	47
E.U Elderly	B/Brisbane/60/2008	E4+1	14.8	47.9	30.4	73.9	43.5	
	B/Hiroshima/9/2010	E1+1	9.4	24.0	8.7	34.8	34.8	50
	B/Hiroshima/9/2010	MDCK 1+1	24.0	49.4	26.1	87.0	17.4	0
	B/Wisconsin/1/2010	E3+1	7.0	10.0	4.3	8.7	13.0	79
Japan Elderly	B/Brisbane/60/2008	E4+1	13.0	31.7	25.0	62.5	33.3	
	B/Hiroshima/9/2010	E1+1	8.7	15.0	4.2	20.8	25.0	53
	B/Hiroshima/9/2010	MDCK 1+1	22.4	43.6	29.2	75.0	12.5	0
	B/Wisconsin/1/2010	E3+1	5.9	10.0	0.0	4.2	16.7	68
U.S. Elderly	B/Brisbane/60/2008	E4+1	23.8	44.9	37.5	83.3	16.7	
	B/Hiroshima/9/2010	E1+1	18.3	20.0	25.0	20.8	0.0	55
	B/Hiroshima/9/2010	MDCK 1+1	51.9	69.2	87.5	100.0	8.3	0
	B/Wisconsin/1/2010	E3+1	18.3	20.6	16.7	29.2	0.0	54
China Elderly	B/Brisbane/60/2008	E4+1	12.1	26.6	10.3	37.9	34.5	
	B/Hiroshima/9/2010	E1+1	7.9	14.3	3.4	13.8	24.1	46
	B/Hiroshima/9/2010	MDCK 1+1	31.5	60.1	51.7	96.6	17.2	0
	B/Wisconsin/1/2010	E3+1	8.3	10.0	0.0	6.9	10.3	62

*) HI tests were done at different day, Sept 2010

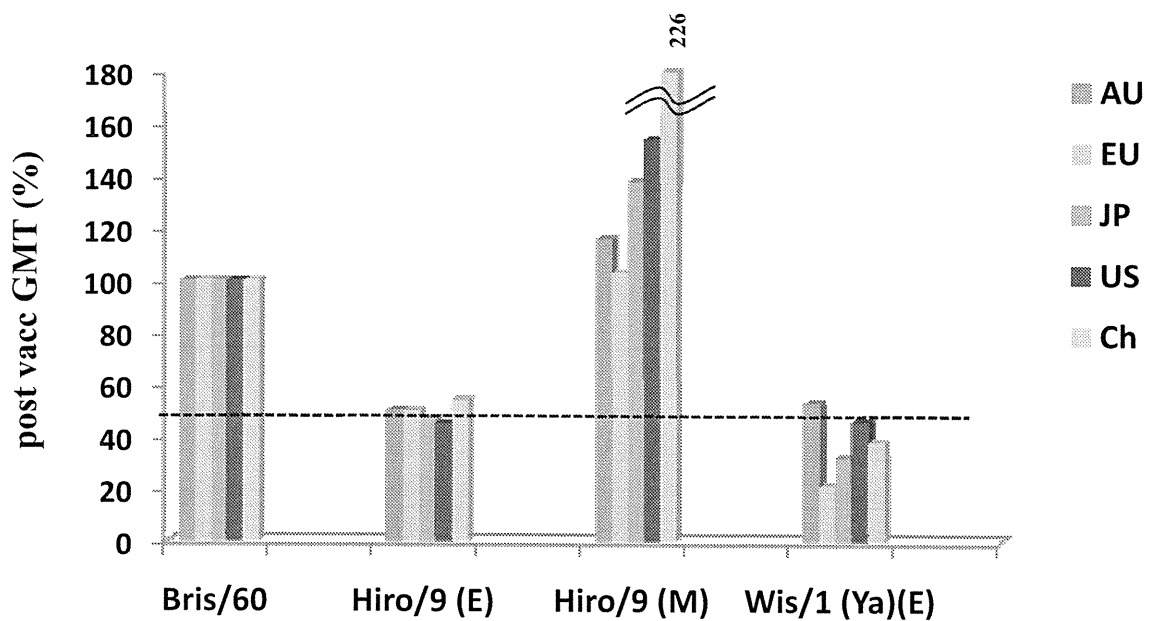
HI antibody response to B viruses

Adult



*) HI tests were done at different day

Elderly



Information for WHO Annual Consultation on
the Composition of Influenza Vaccine
in the Southern Hemisphere

September 26-29, 2011, Geneva, Switzerland



WHO Collaborating Center for Reference and Research on Influenza at Laboratory of
Influenza Virus Surveillance, Center for Influenza Virus Research,
National Institute of Infectious Diseases, Tokyo, Japan

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We acknowledge NHL in Myanmar, NCLE in Lao, NIH in Mongolia, CDCs in China, Korea and Taiwan and 76 Local Public Health Laboratories in Japan for provisions of clinical specimens and virus isolates.

Epidemiology

Summary

Influenza activity from March to September 2011 in Japan

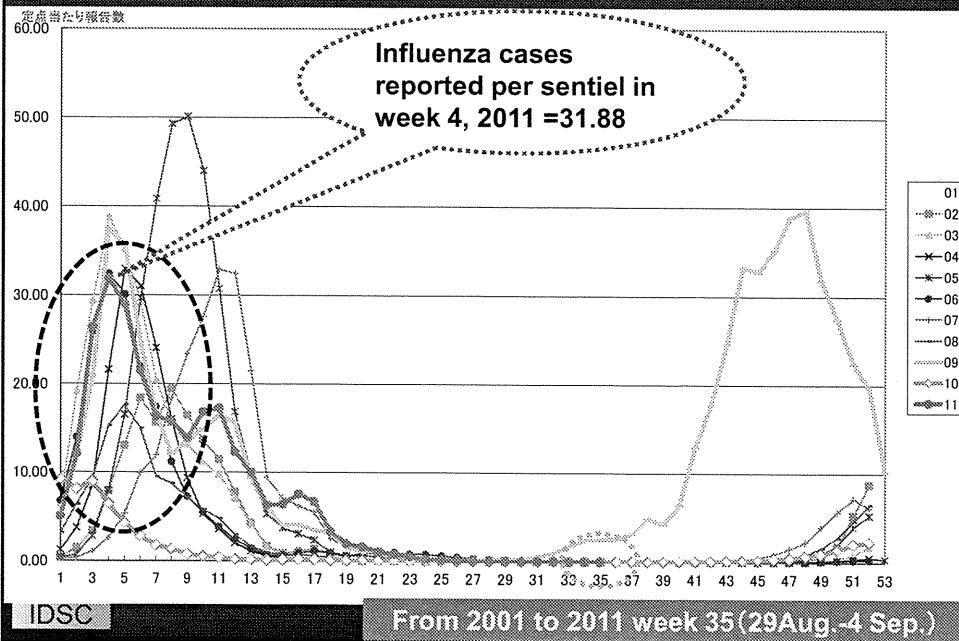
Patients

- Influenza activity in 2010/11 season in Japan increased from week 42, 2010 and peaked at week 4, 2011 when approximately 157,381 cases per week were recorded.
- The activity was gradually decreased after week 4 and declined by week 25.
- The cumulative number of estimated patients who visited to clinics or hospitals was 13.8 million (98% CI; 13.5-14.1 millions).
- Higher proportions of patients were reported from age groups; 5-9 years (3.6 M), 10-14 years (2.1 M) and 0-4 years (1.9 M).

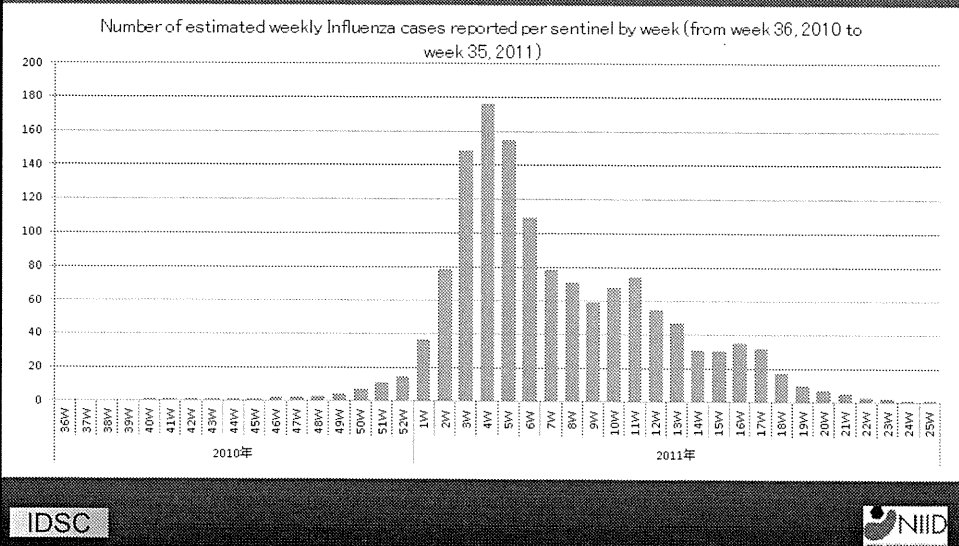
Virus isolations

- At beginning of the 2010/11 season, A/H3N2 viruses were predominantly isolated until week 48-49 and thereafter pandemic A/H1N1 (A/H1N1pdm09) viruses became predominant.
- After week 8, A/H3N2 and B/Victoria-lineage viruses became the major isolates. After week 20, only a few cases of A/H1N1pdm09 viruses were detected.
- Overall proportion of total isolates in the 2010/11 season was 55% for A/H1N1pdm09, 33% for A/H3N2, 12% for B/Victoria-lineage and 0.3% for B/Yamagata-lineage viruses.
- Former A/H1N1 virus was no more isolated since 2009.

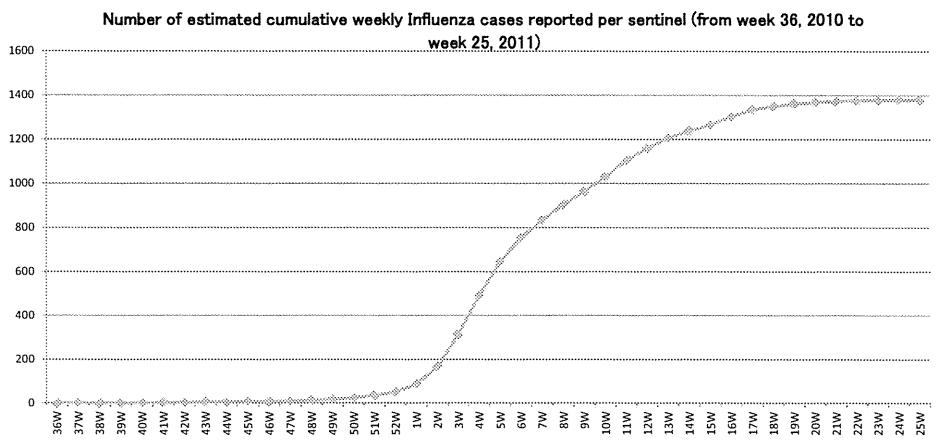
Weekly Influenza cases reported per sentinel



Number of estimated weekly Influenza cases reported per sentinel by week (from week 36, 2010 to week 25, 2011)



Number of estimated cumulative weekly Influenza cases reported from sentinel (from week 36, 2010 to week 25, 2011)

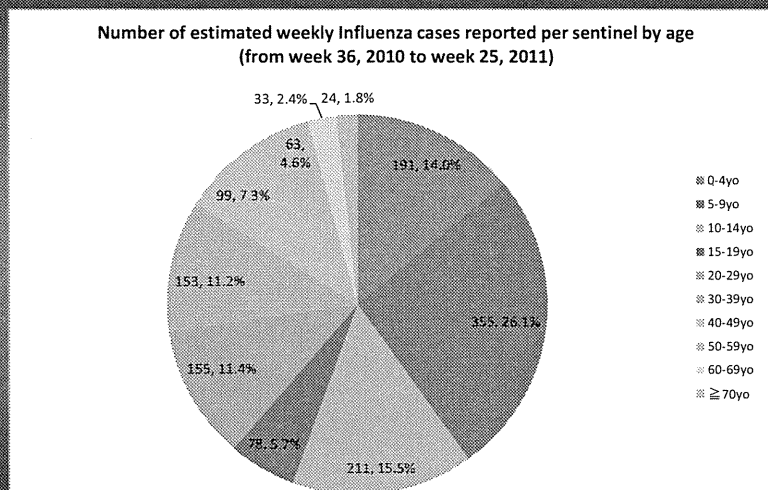


★ Number of estimated cumulative weekly Influenza cases = **13.8 millions**

IDSC

NIID

Number of estimated weekly Influenza cases reported per sentinel by age (from week 36, 2010 to week 25, 2011)



Number of estimated cumulative weekly Influenza cases = **13.8 millions**

IDSC

NIID

Summary 1

- The reported cases per sentinel of influenza in week 4, 2011 was 31.88 (actual reported cases 15,7381) which continue to increase from 42 week, 2010. Miyazaki (60.88↓), Nagasaki (56.61↑), Fukuoka (47.71↓), Saga (46.64↓), Gunma (45.30), Oita (44.36↓), and Saitama (43.66) were the top seven prefecture.
- Weekly estimated number of patients were about 176 million in week 4, 2011.
- The cumulative number of estimated patients who visited to clinics or hospital from week 36, 2010 to week25, 2011 is 13.8 millions [95% CI; 13.5 – 14.1 millions] .

IDSC



Summary 2

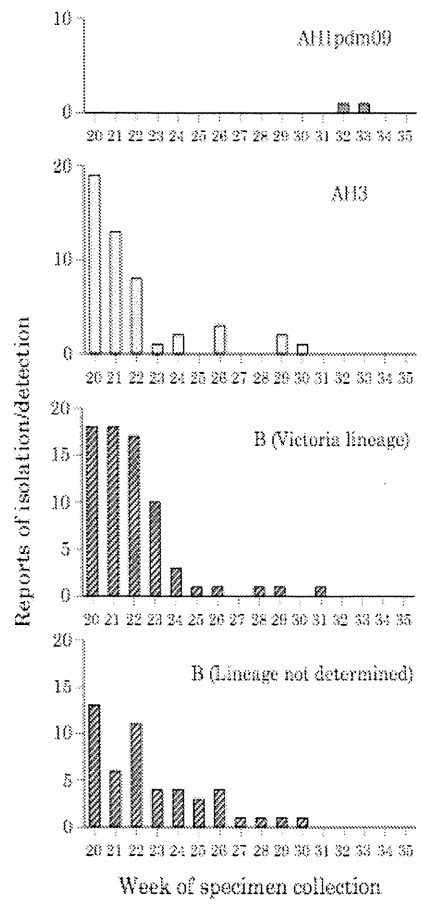
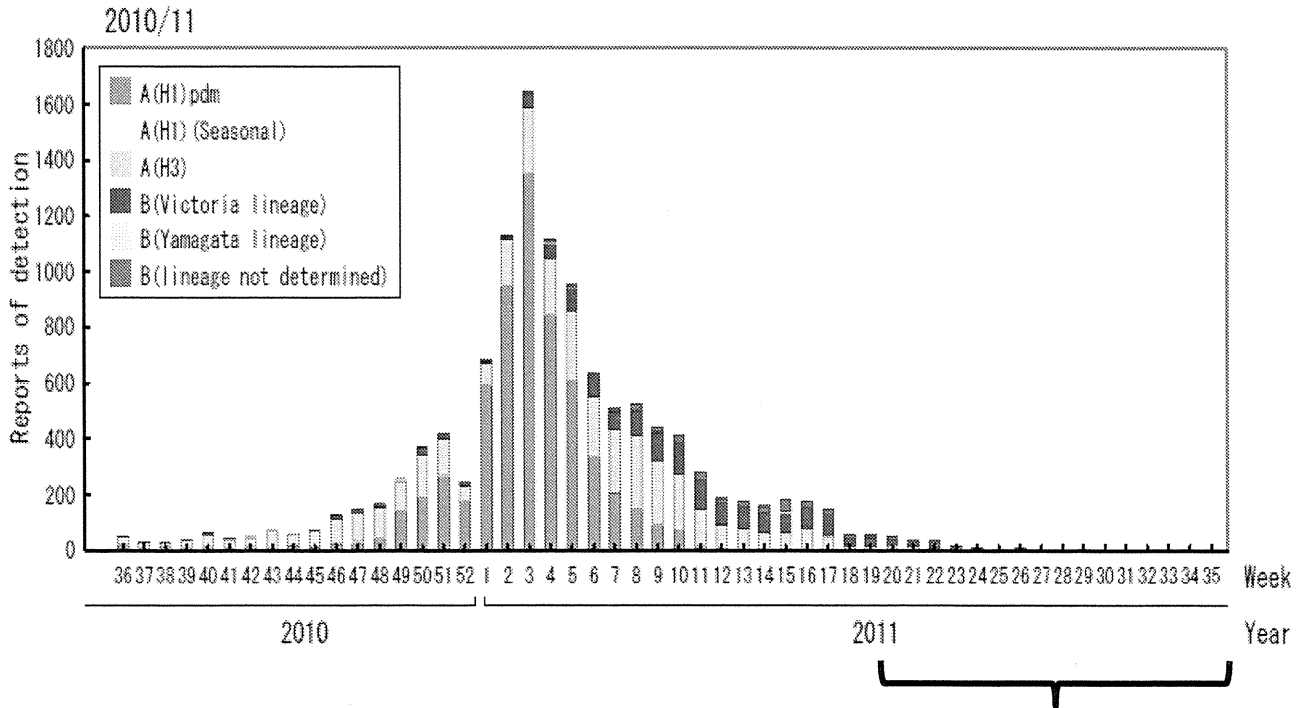
- Male patients were reported more than female (50.9% vs 49.1%) and 5-9 years of age group was most reported (3.6 million) followed by 10 – 14 years (2.1 million), 0-4 years (1.9 million), 20 – 29 years of age group (1.6 million), and 30 – 39 years (1.5 million).

IDSC



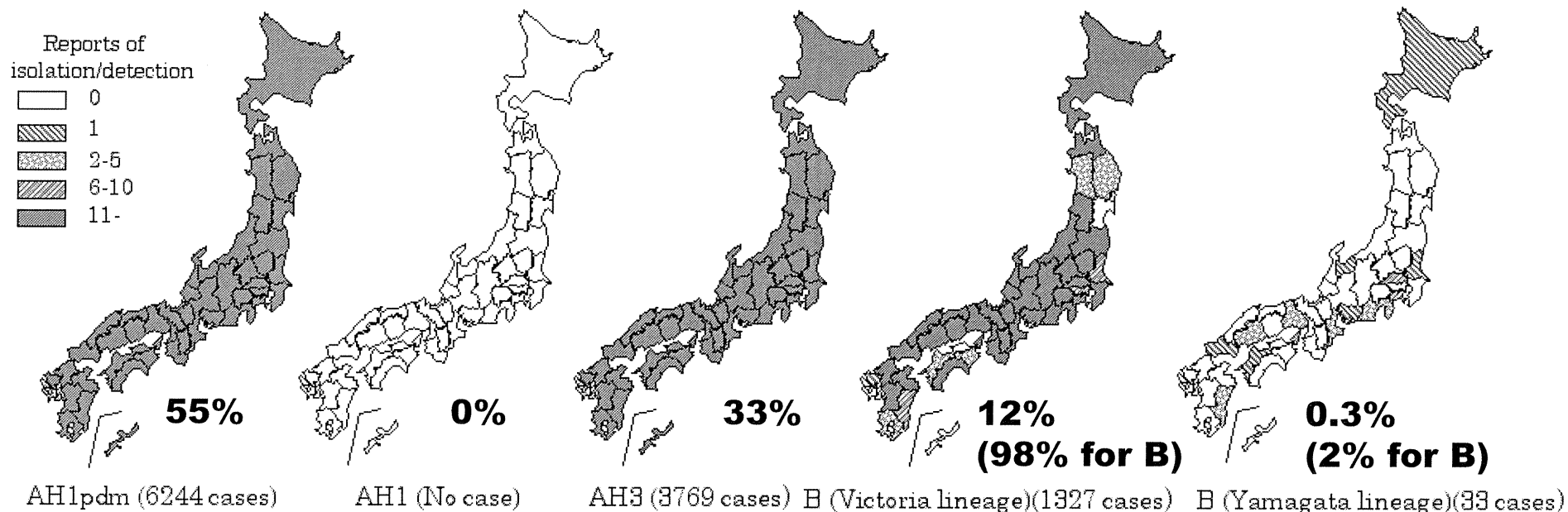
Weekly reports of influenza virus isolation/detection, 2010/11

(Infectious Agents Surveillance Report: Data based on the reports received before September 2, 2011)



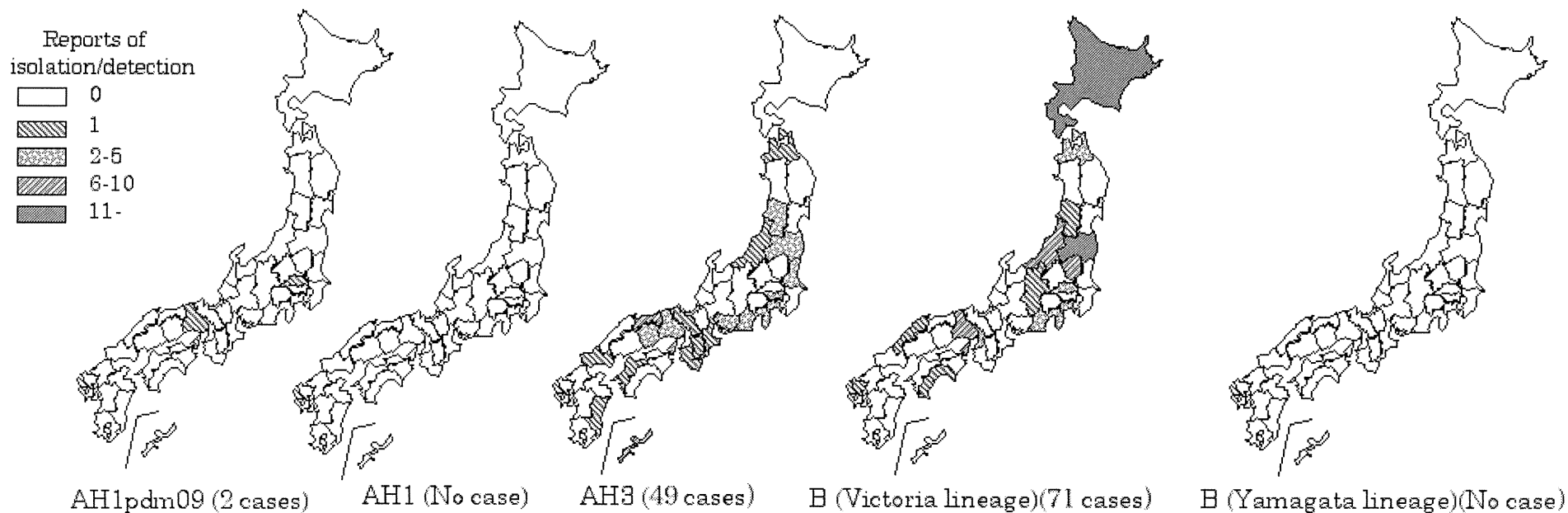
Isolation/detection of influenza viruses by prefecture, from week 36 of 2010 to week 19 of 2011, Japan

(Infectious Agents Surveillance Report: Data based on the reports received before September 6, 2011 from public health institutes)



Isolation/detection of influenza viruses by prefecture, from week 20 to week 35 of 2011, Japan

(Infectious Agents Surveillance Report: Data based on the reports received before September 6, 2011 from public health institutes)



Countries of Origin of Isolates Characterized by NIID

Month of Collection	A/H1N1	A/H1N1pdm	A/H3N2	B/Victoria	B/Yamagata
2009/2010 season viruses (HI-test after Sept.2010)		Japan 16 Myanmar 31 Taiwan 2	Japan 16 China 3 Laos 2 Taiwan 5	China 16 Laos 16 Taiwan 2 Myanmar 10	China 5 Taiwan 1
September, 2010		Japan 12 Taiwan 3	Japan 7 China 29 Laos 2 South Korea 4 Taiwan 7	Japan 9 China 1 Laos 11 Taiwan 2	China 9 Taiwan 1
October, 2010		Japan 5 Laos 3 South Korea 1	Japan 16 China 12 Laos 2	Japan 2 China 1 Laos 7	Japan 2 China 1
November, 2010		Japan 5 Laos 3 South Korea 2	Japan 17 China 1	Japan 3 Laos 3	Japan 2
Decemder, 2010		Japan 23 South Korea 2	Japan 13 China 9 Mongolia 8 South Korea 1	Japan 6	Japan 2 China 4
January, 2011		Japan 94 Taiwan 2	Japan 13 China 6	Japan 6 Laos 4 Taiwan 3	Japan 4 China 1
February, 2011		Japan 51 Laos 1	Japan 20 Taiwan 3	Japan 20 China 4 Laos 1	Japan 5 China 10
March, 2011		Japan 12 Taiwan 2	Japan 25	Japan 21 China 1 Taiwan 1	Japan 2 China 1 Taiwan 1
April, 2011		Japan 3	Japan 10	Japan 16 China 7 Laos 2 Taiwan 1	Japan 4 China 4 Taiwan 3
May, 2011			Japan 6	Japan 14 China 3 Taiwan 3	Japan 1 Taiwan 1
June, 2011				Japan 10 China 9 Laos 1	
July, 2011				Japan 1 China 4	China 1
August, 2011				Japan 1	
September, 2011					
Total	0	273	237	222	65

A/H1N1pdm09 viruses

Summary

Antigenic analysis:

- The majority (88%) of A/H1N1pdm09 viruses tested showed similar HI titers to the homologous titer of A/Cal/7/2009 and A/Narita/1/2009 ferret antisera.
- A few antigenic variant viruses (6%) with 16~32-fold reduced HI titer to A/Cal/7/2009 and A/Narita/1/2009 ferret antisera were detected. For instance, A/Sapporo/163/2011 possessed three amino acid changes (K154E, S185I, S190R) in the antigenic site Sa and Sb.
- Most viruses possessing amino acid changes in 153-156 region (antigenic site Sa) were the mixture of K/E at 153 and 154, G/E at 155, and N/D at 156, and were antigenically similar to A/Cal/7/2009 virus.
- The viruses belonging to A197T subclade exhibited the tendency to grow poorly in MDCK cells with low HA titers. The updated observations of the low HA viruses will be discussed in the VCM.

Phylogenetic analysis

HA gene:

- Viruses isolated after March 2011 exclusively fell into S203T clade and most of Japanese viruses isolated after March-April fell into group 7 (A197T subclade).
- In the group 7, most recent viruses tended to fall into S143G subclade.
- Two serology antigen viruses, A/Sapporo/163/2011 and A/Miyagi/32/2011, were selected from S143G subclade.

NA gene:

- Recent viruses isolated after March fell into groups 6 and 7 (V241I+N369K clade) and most recent viruses belonged to group 7 (N44S subclade).
- Oseltamivir-resistant viruses with H275Y did not form any certain subclade in the NA phylogenetic tree.

Antiviral resistant (NAI) viruses:

- In 2010/11 season, 3748 A/H1N1pdm09 viruses were analyzed and total 78 (70; 1.9%) oseltamivir and peramivir resistant viruses with 275Y substitution were detected. During March to August 2011, 3 resistant (3.4%) viruses in different outbreaks were detected.
- The most resistant viruses were detected from drug-treated or -prophylaxis cases (54%), but the resistants from non drug-exposure cases were significantly increased than those of last season.
- All resistant viruses were sporadically detected in the entire region of Japan and no geographical cluster and no spread in community were confirmed.
- No resistant A/H1N1pdm09 virus to zanamivir and laninamivir was detected.

Influenza A/H1pdm09 isolates characterized by NIID

2010.09.01-2011.09.01

	Japan	China	Taiwan	South Korea	Mongolia	Laos	Myanmar	Singapore	Total	
September 2010 - February 2011									n	%
A/California/7/2009 -like	180	0	5	4	0	6	0	0	195	94.7
A/California/7/2009 -like*	10	0	0	1	0	0	0	0	11	5.3
A/California/7/2009 (Low)**	0	0	0	0	0	0	0	0	0	0.0
Total	190	0	5	5	0	6	0	0	206	

	Japan	China	Taiwan	South Korea	Mongolia	Laos	Myanmar	Singapore	Total	
March 2011 - August 2011									n	%
A/California/7/2009 -like	13	0	2	0	0	0	0	0	15	88.2
A/California/7/2009 -like*	1	0	0	0	0	0	0	0	1	5.9
A/California/7/2009 (Low)**	1	0	0	0	0	0	0	0	1	5.9
Total	15	0	2	0	0	0	0	0	17	

* 4-fold low to homologous titer

** 8-fold or greater low to homologous titer

Hemagglutination inhibition tests of influenza A/H1pdm09 viruses-0.5%TRBCs

Rabbit serum

HI test date:2011/09/01

Strains	Passage History	Sample date	Wisconsin/ 10/98 Cell&Egg No.9930-2	California/ 07/09 pdm Egg No.1	Narita/1/09 pdm Egg No.3	Narita/1/09 pdm Cell No.6	Utah/20/09 pdm Cell No.1	Yamagata/ 752/09 pdm Cell No.1	Remarks
REF.Ag									
A/Wisconsin/10/1998	C3/C3E2 +2		5120	1280	5120	1280	160	80	
A/California/07/2009pdm	E2 +3	2009/04/09	320	640	640	640	640	640	
A/Narita/1/2009pdm	E2 +1	2009/05/08	320	640	2560	1280	640	640	
A/Narita/1/2009pdm	MDCK 1 +3	2009/05/08	320	640	2560	1280	640	320	
A/Utah/20/2009pdm	C 2 +1	2009/07/25	320	160	160	640	2560	1280	
A/YAMAGATA/752/2009pdm	MDCK 2 +1	2009/12/03	40	160	160	320	640	1280	(1), N156D*
TEST.Ag									
A/Laos/065/2011	MDCK 2 +2	2011/02/14	320	1280	5120	1280	640	320	(1), S143G
A/YOKOHAMA/140/2011	MDCK 2 +2	2011/04/28	320	1280	2560	1280	640	640	(1)
A/FUKUOKA/35/2011	MDCK 1 +1	2011/01/18	320	1280	2560	1280	640	640	(1)
A/AOMORI/39/2011	MDCK 5 +1	2011/04/09	320	640	2560	1280	320	160	(1), S143G
A/KAWASAKI/122/2011	MDCK 1 +1	2011/02/14	640	640	640	1280	1280	1280	(1), S143G, G155G>>E*

(1): S185T, A197T

*Antigenic site

Hemagglutination inhibition tests of influenza A/H1pdm09 viruses-0.5%TRBCs

Rabbit serum										HI test date:2011/07/14
Strains	Passage History	Sample date	Wisconsin/ 10/98 Cell&Egg No.9930-2	California/ 07/09 pdm Egg No.1	Narita/ 1/09 pdm Egg No.3	Narita/ 1/09 pdm Cell No.6	Utah/ 20/09 pdm Cell No.1	Yamagata/ 752/09 pdm Cell No.1	Heilongjiang- Xiangfang/ SWL191/11 pdm Egg CNIC#2011-002	Remarks
REF.Ag										
A/Wisconsin/10/1998	C3/C3E2 +2		2560	1280	2560	1280	160	80	2560	
A/California/07/2009pdm	E2 +3	2009/04/09	320	640	640	640	640	640	1280	
A/Narita/1/2009pdm	E2 +1	2009/05/08	320	1280	2560	1280	640	640	2560	
A/Narita/1/2009pdm	MDCK 1 +3	2009/05/08	320	1280	2560	1280	640	640	2560	
A/Utah/20/2009pdm	C 2 +1	2009/07/25	320	160	160	320	1280	640	640	
A/YAMAGATA/752/2009pdm	MDCK 2 +1	2009/12/03	40	160	160	160	640	640	160	(1), N156D*
A/Heilongjiang-Xiangfang/SWL191/2011pdm	E3 +1		160	1280	2560	640	640	640	1280	(1)
TEST.Ag										
A/CHIBA-C/16/2011	MDCK 4 +1	2011/03/07	320	1280	2560	2560	640	640	2560	(1), K119N
A/OSAKA/85/2011	MDCK 2 +2	2011/02/28	640	1280	2560	1280	640	1280	2560	ND
A/TOKYO/11203/2011	MDCK 5 +1	2011/01/12	320	1280	2560	1280	640	640	2560	(1), S84N
A/Laos/1058/2010	MDCK 3 +1	2010/10/25	320	1280	2560	1280	640	640	2560	(1), G155G>>>E*
A/Taiwan/967/2011	E2 +1	2011/01/31	320	1280	2560	1280	640	1280	2560	S183P
A/Taiwan/1325/2011	MDCK 3 +1	2011/03/30	320	1280	2560	1280	640	640	2560	S183P
A/TOKUSHIMA/2/2011	MDCK 1 +1	2011/01/31	320	1280	2560	1280	320	320	1280	ND
A/AICHI/20/2011	MDCK 2 +1	2011/01/07	320	640	2560	1280	640	640	1280	(1), S143G, K153K>>>E*
A/MIYAGI/32/2011	MDCK 2 +1	2011/02/22	320	640	2560	1280	640	320	1280	(1), S143G, \$
A/FUKUSHIMA/17/2011	MDCK 2 +1	2011/01/14	640	640	1280	1280	1280	1280	1280	(1), S84N, K154K>E*
A/TOTTORI/24/2011	MDCK 1 +1	2011/02/19	640	640	1280	1280	1280	1280	1280	ND
A/Taiwan/12/2011	E2 +1	2011/01/07	640	640	1280	1280	1280	1280	1280	D97N, R205K, I216V, K154K>>>E*
A/FUKUI/72/2011	MDCK 2 +1	2011/03/08	320	640	1280	640	640	640	1280	(1), S143G, K153K>>>E*
A/KYOTO/10/2011	MDCK 2 +1	2011/01/25	160	320	1280	640	640	640	640	ND
A/Taiwan/1306/2011	MDCK 3 +1	2011/03/30	160	320	1280	640	640	640	640	(1), S143G
A/KANAGAWA/75/2011	MDCK 3 +1	2011/02/21	160	320	640	640	320	320	640	(1), G155G>E*
A/FUKUSHIMA/126/2011	MDCK 3 +1	2011/02/28	160	160	320	320	1280	640	320	(1), S143G, K153E>>>K*
A/SAITAMA/289/2011	MDCK 2 +1	2011/04/02	160	160	160	320	640	640	640	(1), S143G, N156D>N*
A/SAPPORO/163/2011	MDCK 2 +1	2011/03/04	80	40	40	40	80	160	80	(1), S143G, K154E*, S185I*, S190R*, \$

(1): S185T, A197T

*Antigenic site

\$: Serology Antigen

Phylogenetic analysis of influenza H1N1pdm HA genes (HA1)

10/11 Japanese vaccine strain

HI reference strains in Red

April 2011 in Blue

May 2011 in Green

June 2011 in Orange

July 2011 in Pink

*: Antigenic sites

@: Oseltamivir resistant

\$: Serology antigens

(L): Low Reactor

