

INFLUENZA WEEKLY UPDATE

2009/25: 15-21 June 2009

The national influenza surveillance system in New Zealand is an essential public health component for assessing and implementing strategies to control influenza. This weekly report summarises the data collected from sentinel general practice (GP) surveillance and non-sentinel surveillance.

IN THIS REPORT:

- There has been a sharp increase in consultations for influenza-like illness through sentinel surveillance in week 25 (15-21 June 2009).
- This year to date (1 January 2009 to 21 June 2009), a total of 827 influenza viruses have been reported through sentinel and non-sentinel surveillance. Among them, 605 (73.2%) were reported in week 25 (15-21 June 2009).
- 28 out of 28 seasonal AH1N1 viruses had the H275Y mutation which is known to confer resistance to oseltamivir. Unlike the seasonal AH1N1 viruses, 3 novel influenza AH1N1 09 viruses did not possess the H275Y mutation. This indicates that these novel influenza AH1N1 viruses are sensitive to oseltamivir.
- Novel influenza AH1N1 09 is a notifiable disease in New Zealand. As of 22 June 2009, there have been 302 confirmed novel AH1N1 Influenza 09 cases recorded in EpiSurv.

SENTINEL GENERAL PRACTICE SURVEILLANCE¹

In the past week, a total of 440 consultations for influenza-like illness were reported from 89 general practices in all 24 health districts. This gives a weekly consultation rate of 110.3 per 100 000 patient population.

The graph below compares the consultation rates for influenza-like illness for each health district over the past week. Tauranga had the highest consultation rate (458.6 per 100 000, 16 cases), followed by Ruapehu (445.8 per 100 000, 10 cases) and Eastern Bay of Plenty (254.3 per 100 000, 5 cases).

¹ For more details on sentinel GP surveillance, please refer to Appendix.

Figure 1: Weekly consultation rates for influenza-like illness by health district week ending 21 June 2009

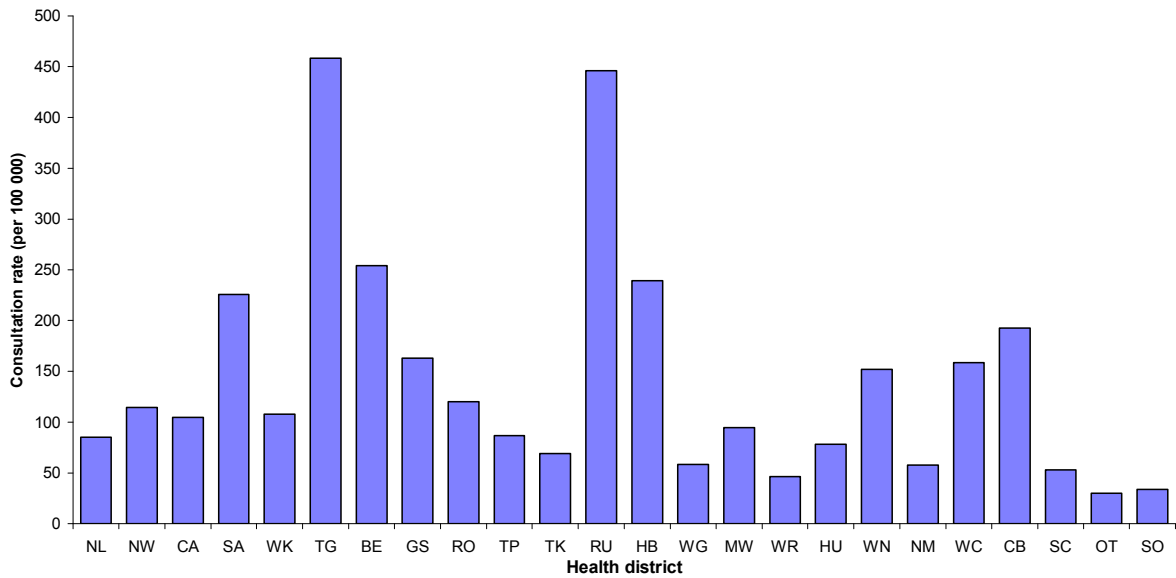


Figure 2 shows the weekly national consultation rates for 2007 and 2008 seasons, and 2009 so far. The current rate of influenza is higher than at the same time last year.

Figure 2: Weekly consultation rates for influenza-like illness in New Zealand, 2007, 2008 and 2009

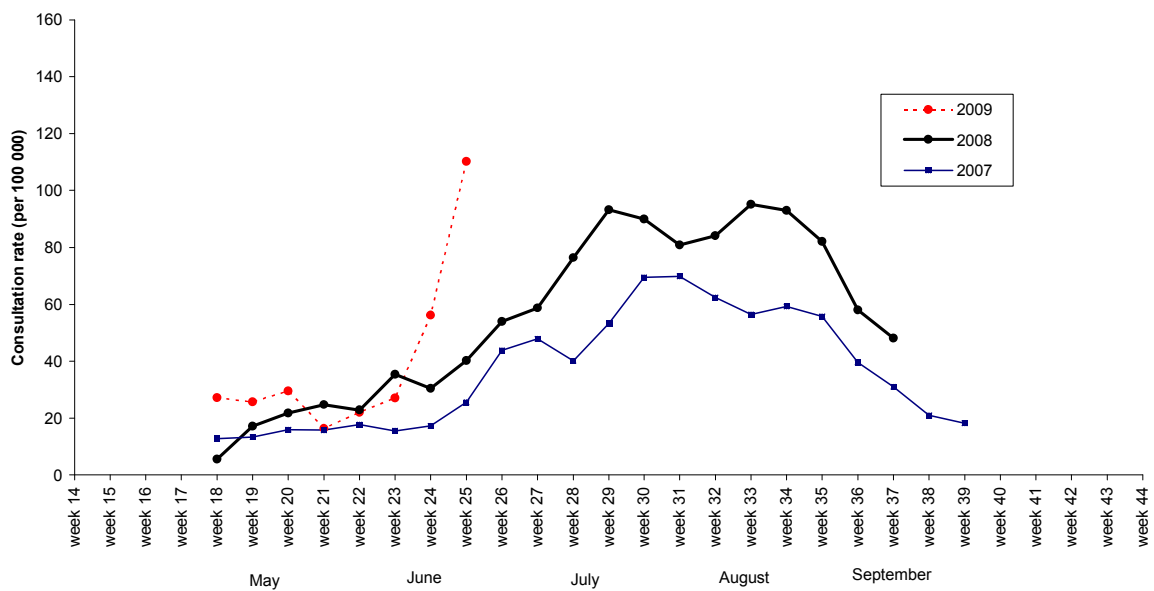
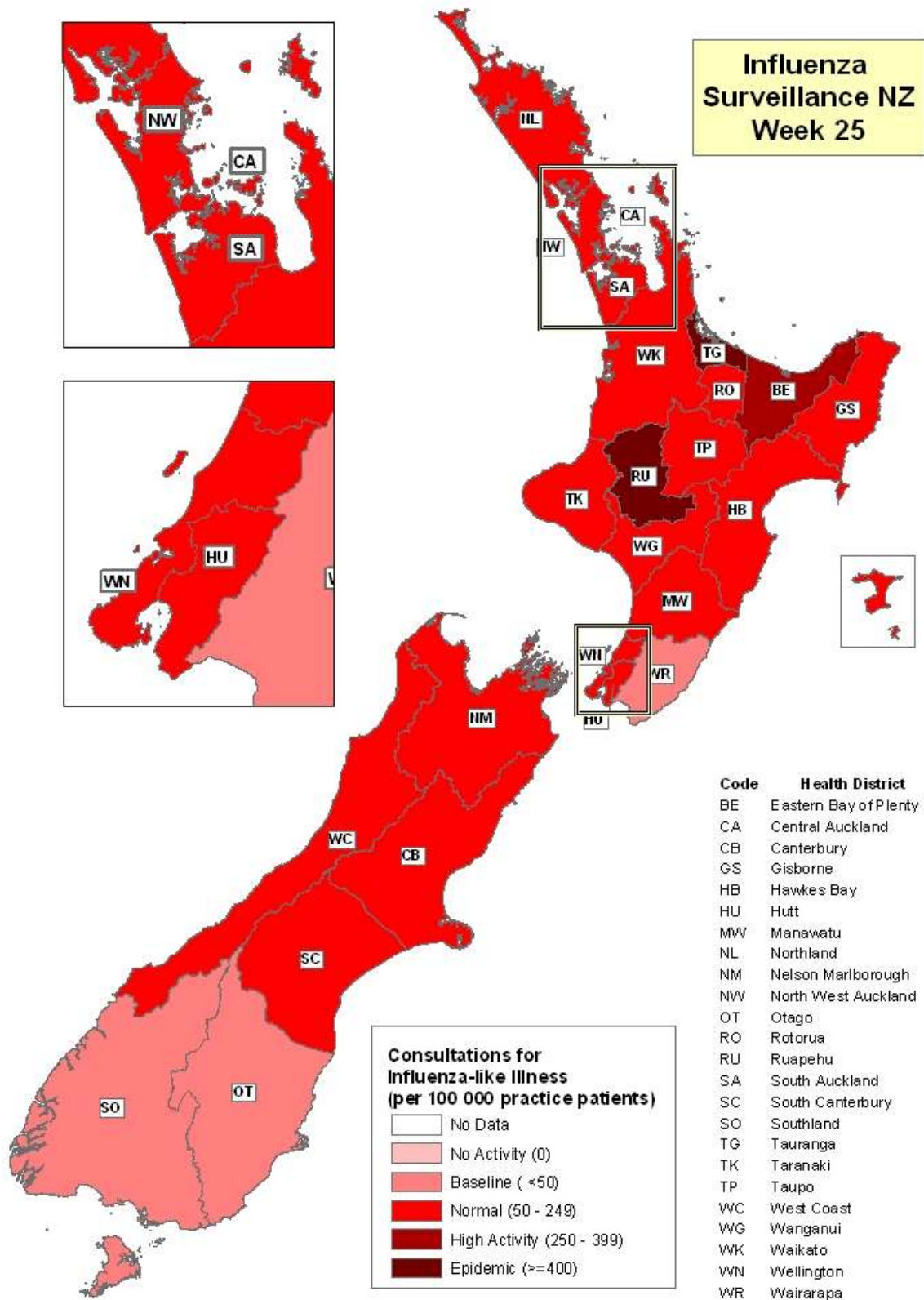


Figure 3 illustrates consultation rates for influenza-like illness mapped by health district for week 25, 2009.



One hundred and fifty-four swabs were sent from the sentinel surveillance in the past week. Ninety-nine² swabs were received by the virology laboratories. Of these, 47 influenza viruses were identified: seasonal influenza A virus (24), seasonal influenza AH1N1 virus (13), novel influenza AH1N1 09 virus (7), seasonal influenza AH3N2 virus (2), and influenza A (not sub-typed) (1). The distribution by health district is shown in Table 1.

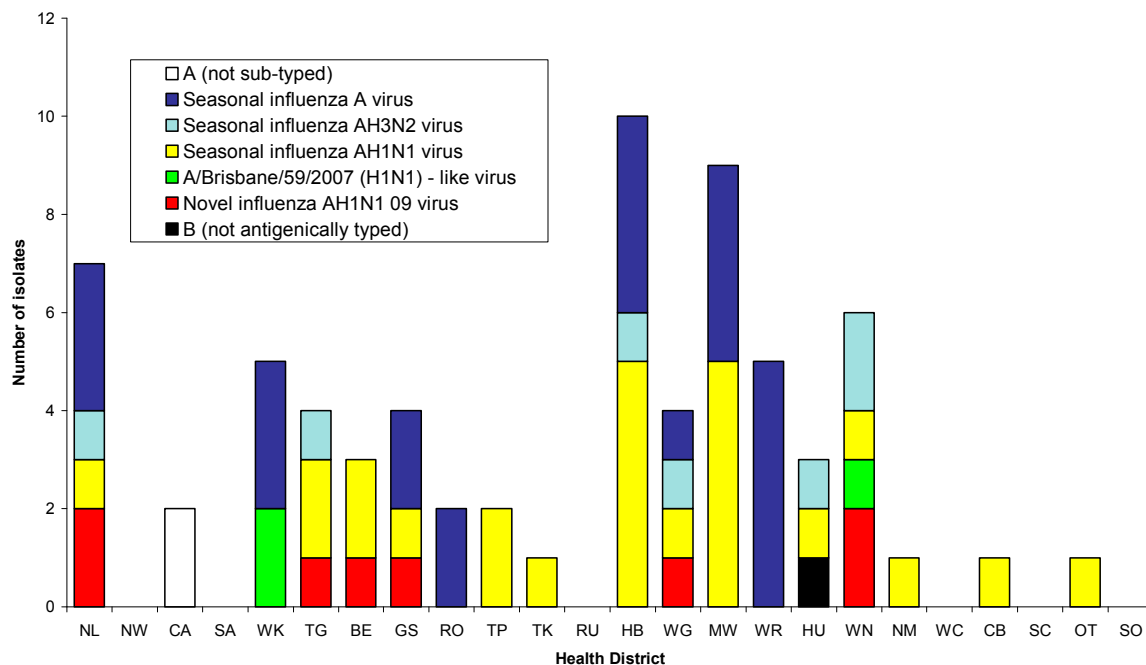
Table 1: Influenza viruses from sentinel surveillance for week 25 by Health District

Antigenic Strain	NL	CA	WK	TG	BE	GS	RO	HB	WG	MW	WR	WN	HU	Total
A (not sub-typed)	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Novel influenza AH1N1 09 virus	2	0	0	1	1	1	0	0	0	0	0	2	0	7
Seasonal influenza A virus	3	0	3	0	0	2	2	4	1	4	5	0	0	24
Seasonal influenza AH1N1 virus	0	0	0	2	1	1	0	5	0	3	0	0	1	13
Seasonal influenza AH3N2 virus	1	0	0	0	0	0	0	1	0	0	0	0	0	2
Total	6	1	3	3	2	4	2	10	1	7	5	2	1	47

*Data was provided from 4/5 virology laboratories.

Figure 4 shows the accumulative influenza viruses from sentinel surveillance by health district from week 18 (27 April-3 May) to week 25 (15-21 June). A total of 70 influenza viruses were identified: seasonal influenza AH1N1 virus (25), seasonal influenza A virus (24), novel influenza AH1N1 09 virus (8), seasonal influenza AH3N2 virus (7), A/Brisbane/59/2007 (H1N1)-like virus (3), influenza A (not sub-typed) (2), and B (not typed) (1).

Figure 4: Accumulative influenza viruses from sentinel surveillance by health district to 21 June 2009



² Data recorded only from 3/5 virology laboratories.

NON-SENTINEL SURVEILLANCE³

In addition, 558 influenza viruses were reported this week from the laboratory-based (non-sentinel) surveillance: novel influenza AH1N1 09 virus (208), seasonal influenza A virus (143), influenza A (not sub-typed) (134), seasonal influenza AH1N1 virus (70), and seasonal influenza AH3N2 (3). The distribution by health district is shown in Table 2.

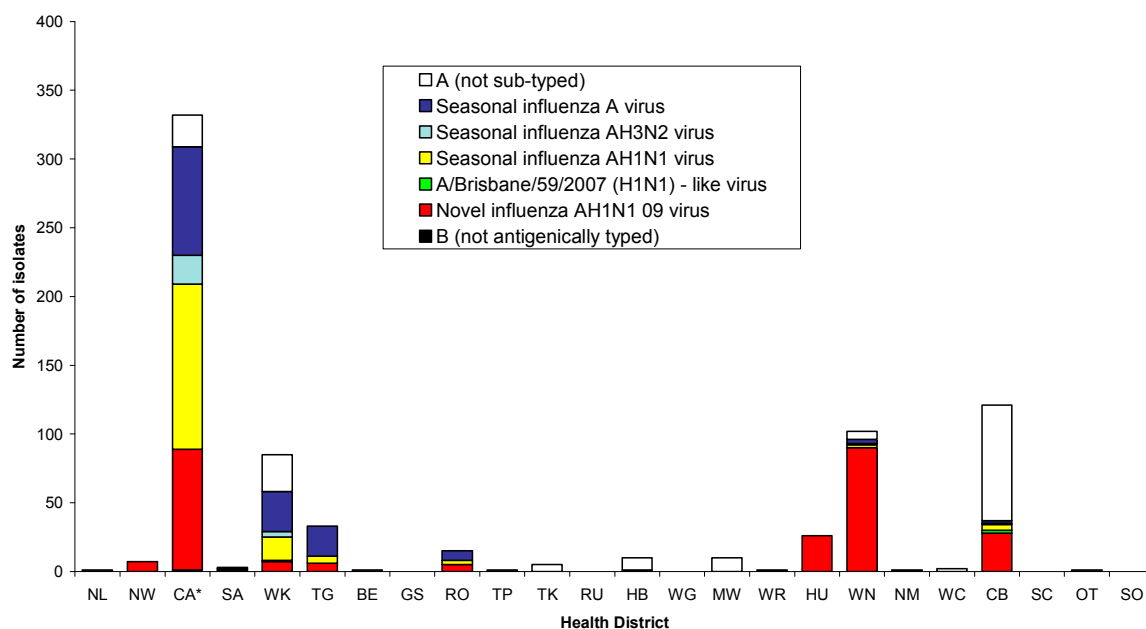
Table 2: Influenza viruses from non-sentinel surveillance for week 25 by Health District

Antigenic Strain	CA	WK	TG	RO	TP	TK	HB	MW	WR	WN	HU	NM	WC	CB	OT	Total
A (not sub-typed)	13	9	0	0	0	5	8	10	0	3	0	0	2	83	1	134
Novel influenza AH1N1 09 virus	57	6	5	5	0	0	0	0	0	82	26	0	0	27	0	208
Seasonal influenza A virus	79	28	22	7	0	0	0	0	1	3	0	1	0	2	0	143
Seasonal influenza AH1N1 virus	55	10	2	2	1	0	0	0	0	0	0	0	0	0	0	70
Seasonal influenza AH3N2 virus	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Total	205	55	29	14	1	5	8	10	1	88	26	1	2	112	1	558

*Data was provided from 4/5 virology laboratories.

Figure 5 shows the accumulative influenza viruses from non-sentinel surveillance by health district to from week 1 (1-4 Jan) to week 25 (15-21 June). A total of 757 influenza viruses were identified: novel influenza AH1N1 09 virus (259), influenza A (not sub-typed) (169), seasonal influenza AH1N1 virus (154), seasonal influenza A virus (144), seasonal influenza AH3N2 virus (27), A/Brisbane/59/2007 (H1N1)-like virus (3), and B (not typed) (1).

Figure 5: Accumulative influenza viruses from non-sentinel surveillance by health district to 21 June 2009



Note: Viruses from Auckland without health district codes have been temporarily assigned to Central Auckland (CA).

³ For more details on non-sentinel surveillance, please refer to Appendix.

ANTIVIRAL SUSCEPTIBILITY MONITORING

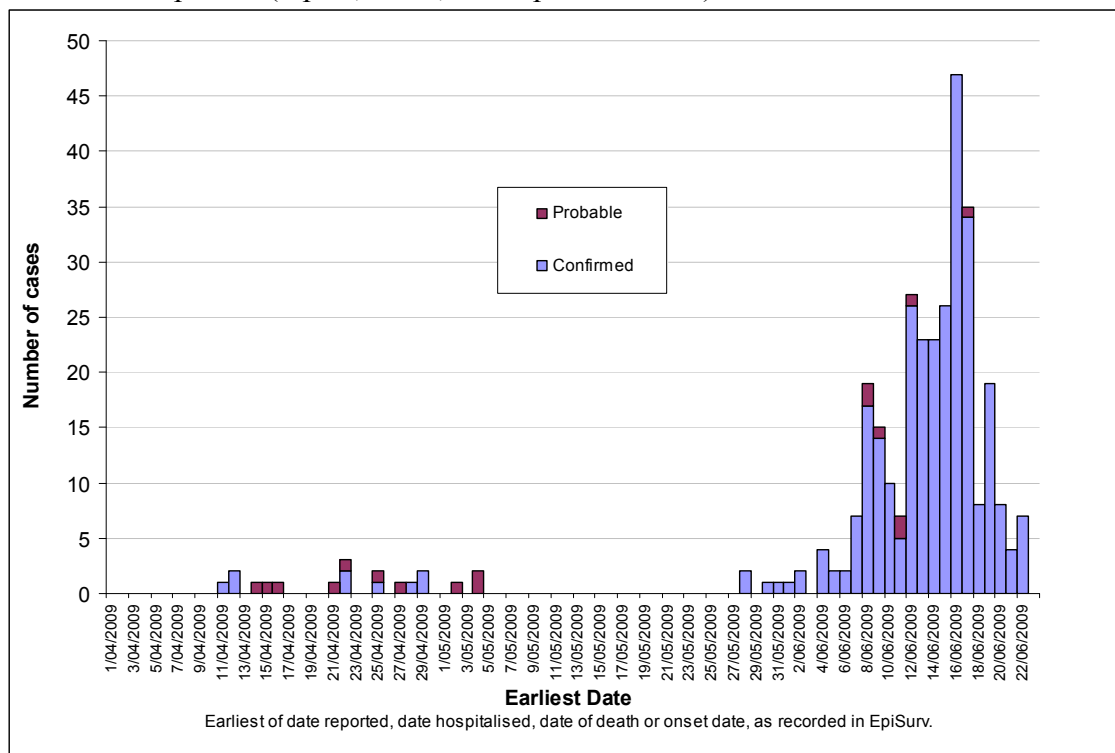
28 seasonal AH1N1 viruses have been tested for the H275Y mutation (histidine-to-tyrosine mutation at the codon of 275 in N1 numbering) which is known to confer resistance to oseltamivir. All 28 viruses had the H275Y mutation. In addition, three novel influenza AH1N1 09 viruses were sequenced and the sequence analysis showed that they did not possess the H275Y mutation. This indicates that these novel influenza AH1N1 viruses are sensitive to oseltamivir.

NOVEL INFLUENZA A H1N1 09 VIRUS UPDATE IN NEW ZEALAND

Novel influenza AH1N1 09 is a notifiable disease in New Zealand. Three hundred and two cases of novel influenza AH1N1 09 viruses have been confirmed in New Zealand. A further 17 probable cases are awaiting confirmation. No deaths were reported.

Figure 6: Novel influenza A H1N1 09 epidemic curve using earliest date entered in EpiSurv as at 12pm 22nd June 2009.

Epidemic curve for novel influenza A H1N1 09 has been created using the earliest date recorded in EpiSurv (report, onset, or hospitalised date).



For further information please refer to the Ministry of Health's website <http://www.moh.govt.nz/influenza-a-h1n1>

APPENDIX

BACKGROUND ON SENTINEL GP SURVEILLANCE

The sentinel GP surveillance system was established in 1991 as part of the World Health Organisation (WHO) global programme for influenza surveillance. It is operated nationally by the Institute of Environmental Science and Research (ESR) and locally by surveillance coordinators within the public health units in 24 health districts. The system operates in the winter usually from May to September each year. It is based on a network of volunteer sentinel GPs distributed on a population density basis of about 1 per 50 000, covering roughly 10% of the New Zealand population. Each sentinel practice records the daily number of consultations for influenza-like illness (ILI), along with the patient's age group, on a standardised reporting form. The case definition used for ILI is an acute respiratory tract infection characterised by an abrupt onset of at least two of the following: fever, chills, headache and myalgia. These data are collected by the local co-ordinator by email, phone or fax each Friday. The consultation rates were calculated using the sum of the patient populations, reported by the participating practices, as the denominator. Because the age-specific patient population data were not provided by the participating practices, the denominator for the age-specific ILI consultation rate calculation was based on the New Zealand census data with the assumption that age distribution of the GP patient population was the same as the New Zealand population. In addition, each sentinel practice also collects three respiratory samples (nasopharyngeal or throat swab) from the first patient seen with an ILI on Monday, Tuesday and Wednesday of each week. These samples are forwarded to the WHO National Influenza Centre at ESR or one of three hospital laboratories in Auckland, Waikato and Christchurch for virus isolation and identification. The criteria for a laboratory identification of influenza are the molecular detection by PCR, isolation of the virus or direct detection of viral antigen. Influenza isolates are typed as being types A and B and influenza A isolates are further subtyped as being seasonal AH1N1 and seasonal AH3N2 and novel AH1N1 09. The virus identification data are forwarded by hospital laboratories to ESR each Monday. ESR reports the national information on epidemiological and virological surveillance of influenza weekly, monthly and annually to relevant national and international levels including the WHO.

BACKGROUND ON NON-SENTINEL SURVEILLANCE

The National Influenza Centre (NIC) at ESR and four hospital laboratories at Auckland (also a NIC), Waikato, Wellington and Christchurch form a laboratory network. ESR collates all-year-round laboratory testing information on influenza nationally from mainly hospital in-patient and outpatients during routine viral diagnosis. In addition, this laboratory network conducts novel influenza AH1N1 09 related public health surveillance. This forms the basis of non-sentinel surveillance. The majority of influenza viruses are forwarded to the WHO Collaborating Centre in Melbourne and CDC-Atlanta for further characterization.

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