

VIROLOGY Quarterly report (July to September 2004)

RESPIRATORY VIRUSES

Influenza virus

Due to the late onset of influenza activity in 2004, the sentinel influenza surveillance was conducted from May to October 2004. For detailed information on influenza activity in 2004, please refer to the report: Sue Huang "recommendation for the influenza vaccine composition 2005". Available at:

http://www.surv.esr.cri.nz/virology/influenza_vaccine.php/.

In summary, influenza activity in 2004 was higher than 2002, but lower than 2003. It had an unusual late peak in week 38 (in the middle of September). A total of 579 influenza isolates were reported from January to September 2004. Among them, 553 were influenza A and 26 were influenza B. Influenza A(H3N2) (245) was the predominant subtype which comprised 90% typed/subtyped isolates and 42% total isolates.

An influenza A outbreak occurred in a rest home in Hutt Valley in the Wellington region in the middle of September 2004. This rest home offers 58 beds. During the outbreak, 26 residents became ill. The attack rate was 45%. Four fatal cases occurred and all cases had significant medical problems. Vaccination status for the 26 residents who developed influenza-like illness was as follows: 16 had had flu vaccination (vaccination coverage, 62%), 6 refused vaccinations and 4 with unknown vaccination status. In addition, the rest home has approximately 74 staff members, 17 developed influenza-like illness during the outbreak. The Ministry of Health released antiviral drug-Tamiflu for prophylaxis for residents with onset of symptoms within 48 hours. Tamiflu was also provided for unaffected residents and staff. The outbreak was well under control soon after. The causative agent was influenza A(H3N2)/Fujian-like strain. These influenza viruses were A/Fujian-low reactors with reduced reactivity (8 fold or greater) against A/Fujian antisera compared with the homologous virus. The vaccine breakthrough could be due to the drifting of A(H3N2) viruses.

The drifting of influenza A(H3N2) virus was observed in New Zealand. ESR national influenza reference laboratory detected 78% (115/148) of A(H3N2) viruses as A/Fujian-low reactors. This phenomenon was also observed by the WHO Collaborating Centre for Influenza in Melbourne who had analysed 464 influenza A(H3N2) viruses from 13 countries and 41% of the isolates had reduced reactivity (8 fold or greater) with A/Fujian-like viruses. As a result, A/Wellington/1/2004 was recommended by WHO and Australia Influenza Vaccine Committee to be the H3 component of the influenza vaccine for southern hemisphere in 2005.

A/Wellington/1/2004 was isolated in ESR from a 57 year old New Zealander who developed influenza-like illness soon after his return from Guangzhou, a southern Chinese city.

In summary, recommendation for influenza vaccine formulation for New Zealand in 2005 is:

- A(H1N1) an A/New Caledonia/20/99-like strain
- A(H3N2) an A/Wellington/1/2004-like strain

- B a B/Shanghai/361/2002-like strain

Respiratory Syncytial Virus, Rhinoviruses and parainfluenza viruses

During July to September 2004, 477 cases of respiratory syncytial virus were reported. This is lower compared with 665 cases of RSV infections during the same period in 2003. Thirty-one rhinoviruses were reported which is higher than 24 isolations during the same period in 2003. A total of 51 parainfluenza viruses were reported with parainfluenza type 1 (32), type 2 (3) and type 3 (16).

ADENOVIRUSES AND ENTEROVIRUSES

Adenoviruses

During July to September 2004, a total of 72 adenoviruses were reported. This was higher than 53 adenovirus isolations during the same period of 2003. Adenovirus type 3 was the predominant serotype. A total of 47 adenoviruses were serotyped as adenovirus type 1 (6), type 2 (4), type 3 (14), type 4 (1), type 5 (1), type 8 (5), type 10 (1), type 13 (1), type 14 (1), type 15 (2), type 19 (7), type 26 (1), type 29 (3)

Enteroviruses

During July to September 2004, a total of 63 enteroviruses were reported. This is much higher than 19 enterovirus isolations during the same period of 2003.

Echovirus 30 was the predominant serotype. A total of 39 enteroviruses were serotyped as Coxsackie B1 (1), Coxsackie B4 (2), Coxsackie B5 (7), Coxsackie A6 (1), Coxsackie A9 (2), Echovirus 5 (2), Echovirus 9 (1), Echovirus 11 (5), Echovirus 20 (1), and Echovirus 30 (17).