

VIROLOGY ANNUAL REPORT 2005

([http://www.surv.esr.cri.nz/virology/virology\\_annual\\_report.php](http://www.surv.esr.cri.nz/virology/virology_annual_report.php))

Table 1 summarises viral and mycoplasma pneumoniae infections reported in New Zealand in 2005. The information is based on weekly data collated from the virology laboratories of Auckland Healthcare, Healthcare Waikato, Canterbury Health Laboratories, Health Otago, Capital Coast Health, Middlemore Hospital and ESR.

Table 1 Summary of virus identification and mycoplasma pneumoniae infections, 2005

Year 2005	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
*Influenza A (not subtyped)	0	0	2	1	1	0	1	2	1	2	0	0	10
*Influenza A/California/7/2004 (H3N2)	3	0	0	2	4	5	17	21	3	0	0	2	57
*Influenza A/Wellington/1/2004 (H3N2)	0	0	1	0	1	2	8	14	0	0	0	0	26
*Influenza A/New Caledonia/20/99 (H1N1)	0	0	0	0	0	0	2	3	8	4	1	0	18
*Influenza B (not typed)	0	0	2	7	13	25	11	2	0	0	0	0	60
*Influenza B/Hong Kong/330/2001	0	0	0	5	73	283	173	14	2	0	0	0	550
*Influenza B/Shanghai/361/2002	2	1	0	4	20	71	19	6	0	1	0	0	124
*Influenza total (A+B)	5	1	5	19	112	386	231	62	14	7	1	2	845
Parainfluenza 1	1	0	0	0	0	1	1	0	1	0	1	0	5
Parainfluenza 2	0	0	1	3	1	3	4	2	1	2	0	0	17
Parainfluenza 3	4	0	2	2	2	10	24	31	32	18	2	3	130
Respiratory Syncytial Virus (RSV)	1	3	4	5	16	56	251	232	128	20	5	3	724
Rhinovirus	7	1	2	8	1	2	5	11	19	16	10	4	86
Measles	0	1	0	0	0	0	1	0	0	0	0	0	2
Mumps	0	0	1	0	1	0	0	3	3	1	1	0	10
Rubella	1	0	1	0	1	1	3	0	1	0	0	0	8
Varicella Zoster Virus (VZV)	58	50	35	52	44	63	64	50	69	49	68	66	668
Rotavirus	7	6	1	2	3	5	24	34	46	48	35	40	251
Mycoplasma Pneumoniae	12	20	17	27	33	30	42	43	50	51	48	42	415
Adenovirus	30	21	23	34	10	19	23	38	30	33	32	45	338
Adenovirus Type 1	0	2	1	1	1	0	3	1	1	4	5	4	23
Adenovirus Type 2	4	0	1	1	0	0	2	6	2	0	7	3	26
Adenovirus Type 3	14	4	7	5	4	7	9	16	14	7	13	14	114
Adenovirus Type 4	3	3	0	3	6	1	4	8	6	3	10	13	60
Adenovirus Type 5	0	1	1	1	2	0	0	1	1	0	1	0	8
Adenovirus Type 8	0	0	0	1	0	0	1	0	0	0	1	0	3
Adenovirus Type 11	0	1	0	0	0	0	0	0	0	0	0	0	1
Adenovirus Type 13	0	1	0	1	0	0	0	0	0	0	0	0	2
Adenovirus Type 14	0	1	0	0	0	0	0	1	0	0	0	0	2
Adenovirus Type 19	0	1	1	0	0	0	0	0	0	0	0	0	2
*Adenovirus Type 37	8	12	9	5	1	0	2	2	0	1	0	0	40
Adenovirus Type 41	1	1	0	0	0	0	1	0	0	1	0	1	5
*Adenovirus Untypable	3	2	1	0	0	0	0	0	0	0	0	0	6
Enterovirus	32	11	17	18	9	17	27	17	23	19	29	28	247
Enterovirus Coxsackievirus Group B type 1	1	1	1	1	0	1	2	0	2	1	3	2	15
Enterovirus Coxsackievirus Group B type 2	0	0	0	0	0	0	0	0	0	1	1	1	3
Enterovirus Coxsackievirus Group B type 3	0	0	0	0	1	1	0	0	2	0	0	0	4
Enterovirus Coxsackievirus Group B type 5	4	3	0	0	0	0	0	0	0	0	0	2	9
Enterovirus Coxsackievirus Group A type 4	0	0	0	2	0	0	0	0	0	0	0	0	2
Enterovirus Coxsackievirus Group A type 6	3	0	0	0	0	0	0	0	0	0	0	0	3
Enterovirus Coxsackievirus Group A type 8	1	0	0	0	0	0	0	0	0	0	0	0	1
Enterovirus Coxsackievirus Group A type 12	0	0	0	0	0	0	0	0	0	1	0	0	1
Enterovirus Coxsackievirus Group A type 16	0	0	0	0	0	0	16	2	3	4	0	4	29
Enterovirus Echovirus type 5	5	2	1	0	0	0	0	0	0	0	0	0	8
Enterovirus Echovirus type 6	0	0	1	0	0	0	0	0	0	0	0	0	1
Enterovirus Echovirus type 7	0	2	0	0	0	0	0	0	0	0	0	0	2
Enterovirus Echovirus type 9	0	0	0	0	1	0	0	1	1	0	0	0	3
Enterovirus Echovirus type 11	0	0	2	0	0	0	0	0	0	0	0	1	3
Enterovirus Echovirus type 18	0	0	0	0	0	0	0	0	0	0	1	2	3
Enterovirus Echovirus type 25	0	0	0	0	0	0	0	2	2	0	0	1	5
Enterovirus Echovirus type 27	0	0	0	0	0	0	0	1	0	0	0	0	1
Enterovirus Echovirus type 30	4	2	1	1	3	1	2	2	0	0	0	0	16
*Enterovirus Poliovirus type 1 (Sabin-like)	0	0	0	0	1	0	0	0	0	0	0	0	1
Enterovirus Untypable	0	0	0	0	0	0	0	0	0	0	1	0	1

\*Note: Viruses designated with an asterisk were reported based on the specimen taken date, whereas other viruses were based on the lab reporting date.

## RESPIRATORY VIRUSES

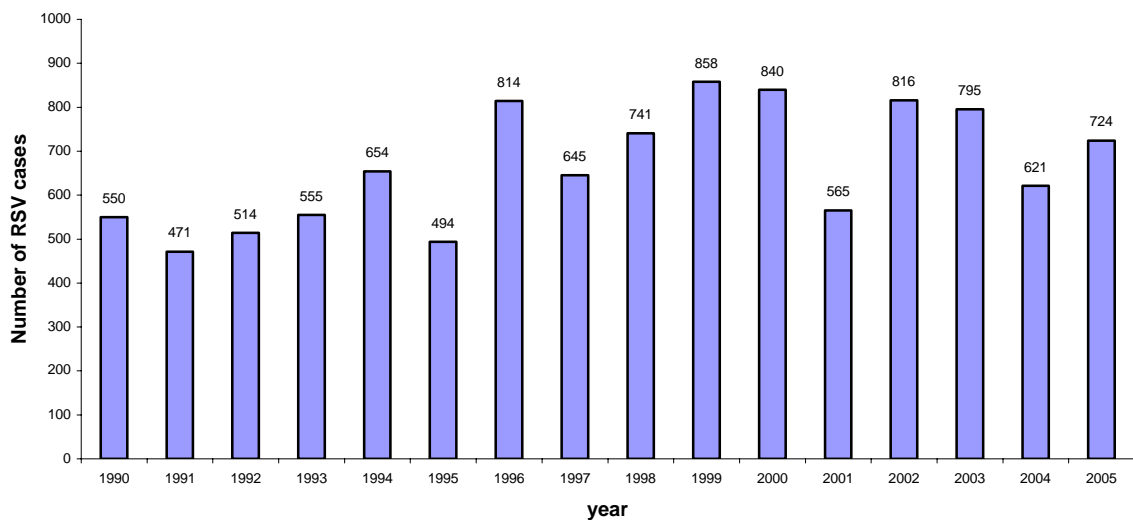
### *Influenza*

The influenza annual report in 2005 is available at the website:  
[http://www.surv.esr.cri.nz/virology/influenza\\_annual\\_report.php](http://www.surv.esr.cri.nz/virology/influenza_annual_report.php)

### *Respiratory Syncytial Virus (RSV)*

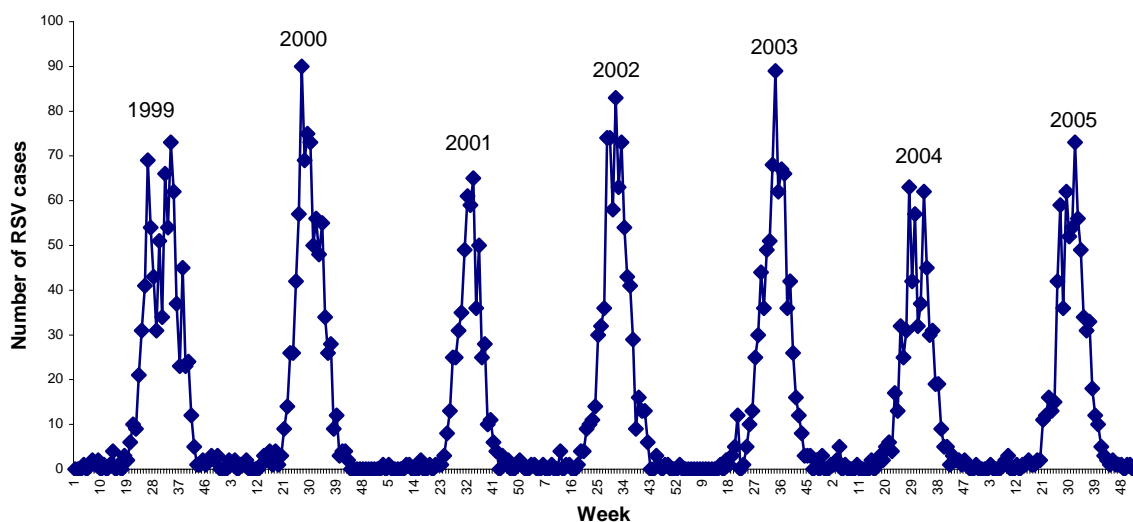
Based on laboratory-confirmed RSV cases reported to ESR, the RSV activity in 2005 was higher than in 2004 (Figure 1). During January to December 2005, a total of 724 RSV infections were reported compared with 621 reported during the same period in 2004. The highest RSV activity occurred in 1999 with 858 cases reported.

**Fig 1 Annual Laboratory-confirmed RSV cases, 1990-2005**



In 2005, the RSV activity started to increase in June and peaked in Week 32 (at the beginning of August), 4 weeks later than the peak in 2004 (Figure 2). The RSV activity remained high until Week 39 (late September). Since then, the number of RSV cases has declined to baseline level.

**Fig 2 RSV Laboratory-confirmed cases by week, 1999-2005**



## ENTEROVIRUSES

The New Zealand enterovirus laboratory network comprises five laboratories: one public health virology laboratory (ESR, Wellington) and four hospital virology laboratories in Auckland, Christchurch, Waikato and Dunedin. These five virology laboratories cover 100% of the population and all geographical areas of the country. The enterovirus surveillance is a year-round routine diagnostic surveillance for hospital in-patients and out-patients. Hospital laboratories report all enterovirus isolations and/or typing results weekly to ESR and this data is then available nationally. Untyped or untypable enteroviruses are referred to ESR for identification.

There were a total of 247 enteroviruses reported in 2005, compared with 229 in 2004. A total of 111 (44.9%) enteroviruses were serotyped. Among serotyped enteroviruses, coxsackie A16 was the most predominant serotype with 29 isolations (26.1%), compared with one isolation of coxsackie A16 in 2004. There were 16 isolations of echovirus type 30 (14.4%) and 15 of coxsackie B5 (13.5%), compared with 33 of echovirus type 30 and 16 of coxsackie B5 in 2004 respectively.

### *Poliovirus type 1 (Sabin like)*

On Feb 1, 2002, inactivated poliomyelitis vaccines replaced live-attenuated oral poliovirus vaccine (OPV) in New Zealand's immunisation schedule. This resulted in dramatic decrease of OPV strains circulation in New Zealand (*Huang et al, Lancet 2005; 366:394-96*). From 1 February 2002 to December 2004, the enterovirus laboratory network detected OPV strains on three occasions:

- Five days after the switch, Sabin like polioviruses type 1 and 2 were isolated from a 2-month-old boy without acute flaccid paralysis.
- 19 months after the switch (August 2003), a Sabin like poliovirus type 2 was isolated from a 10-month-old girl with conjunctivitis.
- 22 months after the switch (November 2003), a Sabin like poliovirus type 3 was isolated from a 3-month-old boy with gastroenteritis from England who had just had his second OPV immunisation in UK.

In May 2005, a Sabin like poliovirus type 1 was isolated from a nasopharyngeal swab from a 10-day-old Christchurch boy who developed upper respiratory tract illness. Virological investigation did not detect any poliovirus from stools collected from the child's immediate and extended family members. An epidemiological investigation found that the child's grandmother had been in close contact with another grandchild who had just had OPV immunisation in Australia.

## MEALSES, MUMPS AND RUBELLA(MMR)

The MMR annual report in 2005 is available in the report "Annual Surveillance Summary 2005" at [http://www.surv.esr.cri.nz/surveillance/annual\\_surveillance.php?we\\_objectID=1016](http://www.surv.esr.cri.nz/surveillance/annual_surveillance.php?we_objectID=1016)

## ADENOVIRUSES

The New Zealand adenovirus laboratory network comprises five laboratories: one public health virology laboratory (ESR, Wellington) and four hospital virology laboratories in Auckland, Christchurch, Waikato and Dunedin. The adenovirus surveillance is a year-round routine diagnostic surveillance for hospital in-patients and out-patients. Hospital laboratories report all adenovirus isolations and/or typing results weekly to ESR and this data is then available nationally. Untyped or untypable adenoviruses are referred to ESR for identification.

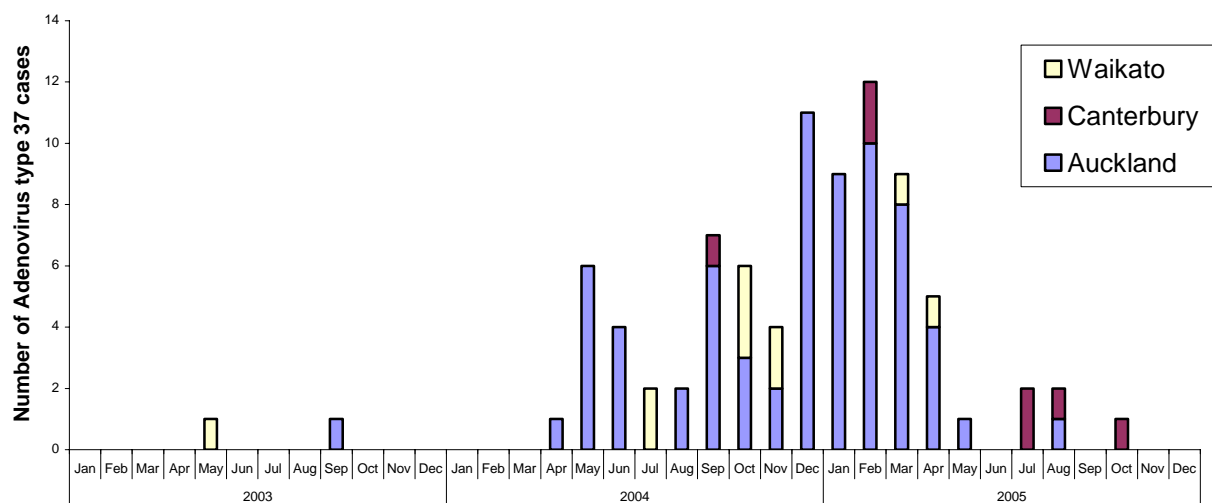
There were a total of 338 adenoviruses reported in 2005, compared with 278 in 2004. Of these, 303 adenoviruses were serotyped using adenovirus antisera 1-31, 37 and 41. The predominant serotypes in 2005 were adenovirus type 3 (114 isolates, 37.6%), type 4 (60, 19.9%) and type 37 (40, 13.2%).

### *Adenovirus type 37*

Human adenovirus type 37 (HAdV-37) was first isolated in 1976 in The Netherlands as a newly identified serotype (De Jong et al 1981). HAdV-37, as well as HAdV -8 and HAdV-19, has been recognised as an important causative agent of keratoconjunctivitis. In Sapporo, northern Japan, HAdV-37 has been isolated every year since 1977 and has caused three large epidemics of conjunctivitis between 1990 and 2001 (Ariga et al 2005).

This is a short summary of the first recorded outbreak of HAdV-37 in New Zealand during 2003 to 2005. The first identified case of HAdV-37 occurred in a 45-year-old male from Waikato in May 2003. The second case was identified from a 40-year-old male from Auckland in September 2003. No further cases were reported until April 2004 (Figure 3). The HAdV-37 activity increased during the summer period from December 2004 to March 2005 and peaked in February 2005. The majority of cases occurred in Auckland (69, 80.2%) with occasional cases reported in Waikato (10, 11.6%) and Canterbury (7, 8.1%). Case numbers decreased after May 2005 and the last identified case occurred in October 2005. For 86 patients from whom HAdV-37 viruses were isolated, 51 were male and 35 were female (M/F ratio: 1.5:1). Their median age was 33.7 years, ranging from 4 months to 86 years with 66 (76.7%) of the patients aged from 20 to 49 years. The main clinical presentation of the patients was conjunctivitis.

**Fig 3 Adenovirus type 37 cases by month, 2003-2005**



### Reference:

Ariga, T., Shimada, Y., Shiratori, K., Ohgami, K., et al. 2005. Five New Genome Types of Adenovirus Type 37 Caused Epidemic Keratoconjunctivitis in Sapporo, Japan, for More Than 10 Years. *J. Clin. Microbiol.* 43:726-732.

De Jong, J.C., Wigand, C.R., Wadell, G, et al 1981. Adenovirus 37: identification and characterisation of a medically important new adenovirus type of subgroup D. *J. Med. Virol.* 7:105-118