

VIROLOGY ANNUAL REPORT 2016

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

The virology annual report is compiled by ESR by collating the data from virology and microbiology laboratories: one public health virology laboratory (ESR) and three hospital virology laboratories (Auckland Labplus, Waikato Hospital and Canterbury Health) and four Microbiology laboratories (Wellington Hospital, Middlemore Hospital, Tauranga PathLab, and Dunedin Hospital). The virological surveillance is mainly a passive surveillance for hospital inpatients and outpatients during routine viral diagnosis.

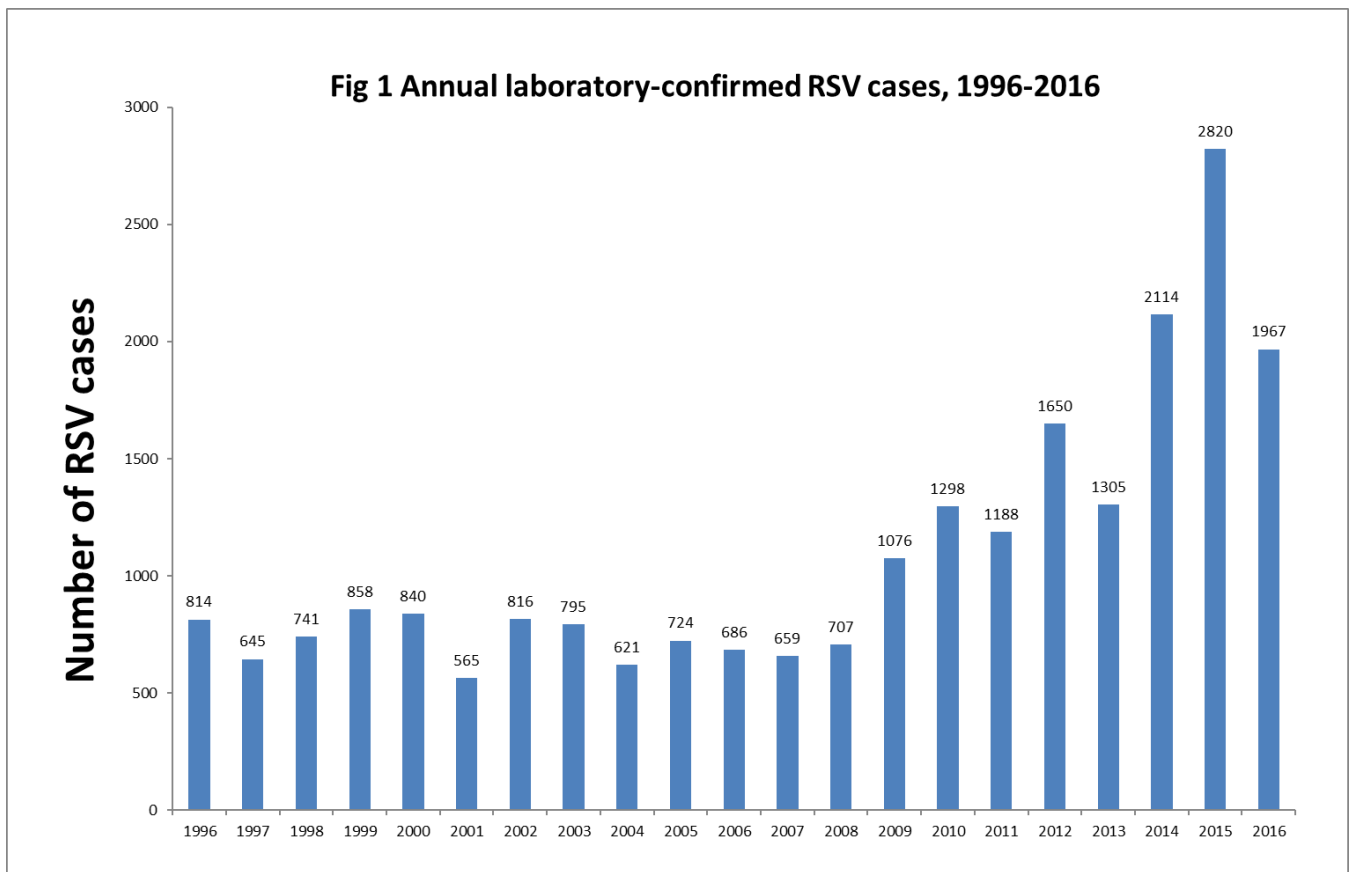
RESPIRATORY VIRUSES

Influenza

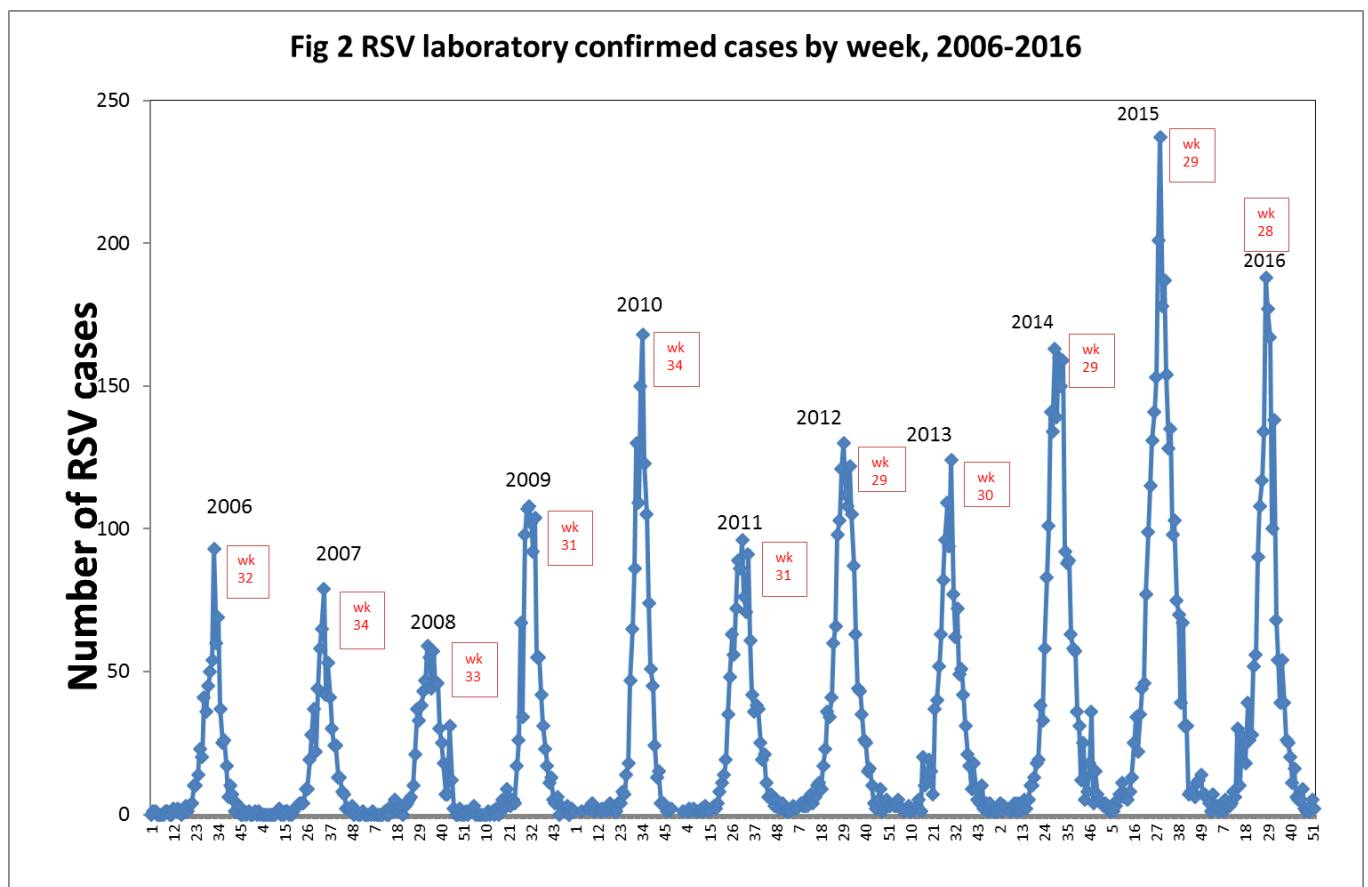
The influenza annual report in 2016 is available at the website:
http://www.surv.esr.cri.nz/virology/influenza_annual_report.php

Respiratory Syncytial Virus (RSV)

Based on laboratory-confirmed RSV cases reported to ESR, the RSV activity in 2016 was lower than last year (Figure 1). During January to December 2016, a total of 1967 RSV infections were reported compared with 2820 cases reported during the same period in 2015.



In 2016, the RSV activity started to increase in June and peaked in Week 28 (middle of July), a week earlier than the peak in 2015 (Figure 2). The RSV activity remained high until Week 32 (middle of August). Since then, the number of RSV cases declined to a baseline level.



ENTEROVIRUSES AND ADENOVIRUSES

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

Enteroviruses

There were a total of 765 enteroviruses reported in 2016, compared with 506 in 2015. A total of 111 (15%) enteroviruses were identified by serotyping. Among serotyped enteroviruses, Coxsackievirus Group A type 6, (37, 33%), was the most common serotype followed by Echovirus type 18 (21, 19%), while in 2015, Coxsackievirus Group B type 5, (29) and Coxsackievirus Group A type 6 (28), were the predominant strains.

Adenoviruses

There were a total of 1006 adenoviruses reported in 2016, lower than 1802 in 2015. Of these, 175 (17%) adenoviruses were identified by serotyping. The predominant serotype in 2016 was adenovirus type 7 (84, 48%), followed by type 3 (22, 13%). The same predominant serotypes were also reported in 2015 with adenovirus type 7 (270) and type 3 (46).

MEASLES, MUMPS AND RUBELLA (MMR)

The MMR annual report in 2016 is available in the report “Annual Surveillance Summary 2016” at http://www.surv.esr.cri.nz/PDF_surveillance/AnnualRpt/AnnualSurv/2015/2015AnnualSurvRpt.pdf

Summary of Viruses identified

All identified viral and Mycoplasma pneumoniae infections in New Zealand in 2016 are shown in Table 1. The information is based on weekly data collated from the virology laboratories of Auckland Labplus, Waikato Hospital, Canterbury Health, and microbiology laboratories of Wellington SCL, Dunedin SCL, Middlemore Hospital, Tauranga PathLab and ESR.

Table 1. Summary of viral and Mycoplasma pneumoniae infections in 2016 in New Zealand

| | Jan | Feb | Mar | April | May | June | July | Aug | Sep | Oct | Nov | Dec | Total |
|-----------------------------------|-----|-----|-----|-------|-----|------|------|-----|-----|-----|-----|-----|-------|
| A (not sub-typed)* | 0 | 1 | 1 | 9 | 5 | 25 | 27 | 58 | 207 | 32 | 14 | 4 | 383 |
| A(H1N1)pdm09* | 8 | 13 | 19 | 21 | 36 | 55 | 96 | 83 | 36 | 3 | 6 | 18 | 394 |
| A(H3N2)* | 7 | 5 | 3 | 4 | 14 | 178 | 430 | 527 | 395 | 74 | 40 | 21 | 1698 |
| B (not lineage-typed)* | 3 | 7 | 7 | 9 | 3 | 10 | 5 | 17 | 43 | 33 | 17 | 11 | 165 |
| B/Victoria lineage* | 1 | 4 | 2 | 1 | 2 | 3 | 4 | 6 | 4 | 3 | 4 | 1 | 35 |
| B/Yamagata lineage* | 5 | 0 | 1 | 1 | 3 | 2 | 4 | 8 | 23 | 54 | 18 | 10 | 129 |
| Astrovirus | 0 | 0 | 0 | 0 | 0 | 12 | 19 | 25 | 25 | 10 | 1 | 7 | 99 |
| Bocavirus | 2 | 3 | 4 | 6 | 7 | 13 | 40 | 35 | 45 | 15 | 14 | 4 | 188 |
| Coronavirus | 0 | 0 | 0 | 0 | 6 | 56 | 70 | 69 | 44 | 11 | 0 | 0 | 256 |
| Metapneumovirus | 9 | 3 | 7 | 2 | 21 | 40 | 99 | 121 | 177 | 127 | 57 | 39 | 702 |
| Mycoplasma pneumoniae | 5 | 4 | 5 | 7 | 7 | 9 | 9 | 7 | 7 | 9 | 10 | 5 | 84 |
| Norovirus | 0 | 0 | 3 | 4 | 2 | 37 | 149 | 164 | 118 | 72 | 49 | 69 | 667 |
| Parainfluenza 1 | 3 | 8 | 10 | 31 | 33 | 81 | 91 | 23 | 8 | 3 | 4 | 2 | 297 |
| Parainfluenza 2 | 0 | 0 | 0 | 1 | 1 | 3 | 0 | 4 | 3 | 9 | 6 | 4 | 31 |
| Parainfluenza 3 | 7 | 9 | 2 | 2 | 5 | 7 | 20 | 34 | 74 | 68 | 69 | 71 | 368 |
| Parainfluenza 4 | 1 | 1 | 5 | 4 | 11 | 37 | 18 | 7 | 4 | 1 | 0 | 1 | 90 |
| Parechovirus | 1 | 1 | 2 | 3 | 1 | 0 | 2 | 0 | 0 | 3 | 2 | 3 | 18 |
| Parvovirus | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 7 |
| Picornavirus | 41 | 60 | 97 | 78 | 60 | 158 | 120 | 107 | 163 | 107 | 139 | 104 | 1234 |
| Respiratory Syncytial Virus (RSV) | 13 | 9 | 24 | 92 | 111 | 423 | 666 | 360 | 183 | 53 | 21 | 12 | 1967 |
| Rhinovirus | 55 | 63 | 119 | 113 | 170 | 412 | 293 | 240 | 269 | 155 | 129 | 109 | 2127 |
| Rotavirus | 16 | 6 | 5 | 1 | 1 | 5 | 5 | 10 | 28 | 11 | 10 | 4 | 102 |
| Sapovirus | 0 | 0 | 0 | 0 | 6 | 40 | 31 | 28 | 28 | 6 | 19 | 18 | 176 |
| Varicella Zoster Virus (VZV) | 183 | 177 | 198 | 181 | 159 | 215 | 164 | 168 | 199 | 142 | 183 | 239 | 2208 |
| Adenovirus | 118 | 79 | 80 | 58 | 75 | 108 | 80 | 71 | 112 | 88 | 61 | 76 | 1006 |
| Enterovirus | 21 | 54 | 92 | 55 | 42 | 54 | 41 | 61 | 103 | 82 | 90 | 70 | 765 |
| Adenovirus Type 1 | 3 | 0 | 0 | 0 | 1 | 2 | 3 | 0 | 4 | 0 | 3 | 0 | 16 |
| Adenovirus Type 2 | 1 | 0 | 0 | 0 | 2 | 1 | 1 | 5 | 1 | 2 | 6 | 6 | 25 |
| Adenovirus Type 3 | 10 | 3 | 4 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 1 | 22 |
| Adenovirus Type 4 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 3 | 3 | 10 |
| Adenovirus Type 5 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 |
| Adenovirus Type 6 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Adenovirus Type 7 | 30 | 15 | 14 | 0 | 7 | 0 | 1 | 4 | 1 | 2 | 5 | 5 | 84 |
| Adenovirus Type 8 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Adenovirus Type 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| Adenovirus Type 14 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Adenovirus Type 19 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Adenovirus Type 22 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| Adenovirus Type 34 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Adenovirus Type 35 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 3 |
| Adenovirus Type 48 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| Coxsackievirus A type 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 3 |
| Coxsackievirus A type 6 | 5 | 4 | 1 | 0 | 2 | 0 | 4 | 2 | 4 | 5 | 4 | 6 | 37 |
| Coxsackievirus A type 10 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Coxsackievirus A type 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Coxsackievirus B type 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 |
| Coxsackievirus B type 3 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 5 |
| Echovirus type 6 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 2 | 3 | 3 | 13 |
| Echovirus type 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 2 | 6 |
| Echovirus type 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| Echovirus type 18 | 1 | 1 | 7 | 7 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 21 |
| Echovirus type 25 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 3 |
| Echovirus type 30 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| Echovirus type 33 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 4 |
| Enterovirus type 68 | 0 | 1 | 0 | 5 | 0 | 0 | 1 | 2 | 1 | 0 | 0 | 0 | 10 |
| Measles | 0 | 7 | 0 | 7 | 17 | 19 | 4 | 4 | 2 | 1 | 0 | 0 | 61 |
| Mumps | 0 | 0 | 1 | 1 | 2 | 2 | 0 | 1 | 3 | 6 | 1 | 2 | 19 |
| Rubella | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |

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